PETROLEUM WEEK

AUGUST 5, 1955

■ A McGRAW-HILL PUBLICATION

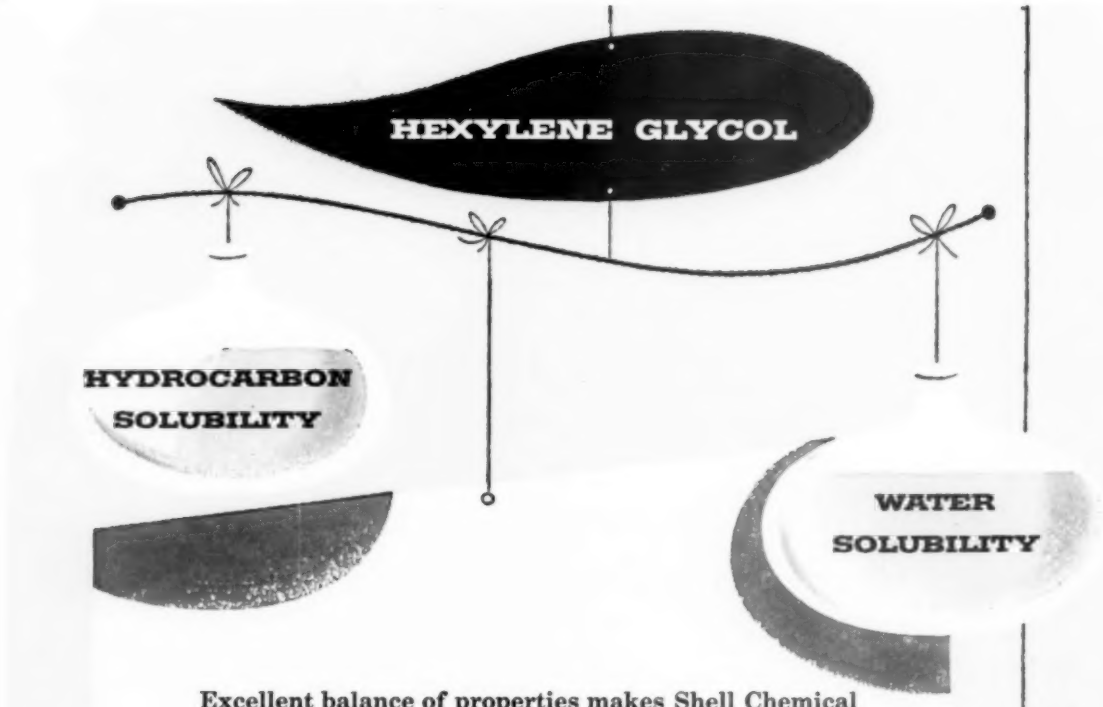
WHAT'S THE ANSWER?

Old vs. New Wells: Proration Problem 9
Round 2 Will Tell on Gas Bill 10
Oil Profits Show Healthy Rise 11
Big Gas Pipeline Wins O.K. 13
Special Report on Offshore Oil—II 14
Chemical Used to Slice Tubing 19
Refiners Eye Profits from Residual 23

THIS WILL HIT GAS' DEMAND!

Tighter Terms Ahead for Car Buyers 25
Pipeline to Shift Pattern of Oil Flow 26
Japanese Refiners Want to Export 28
'Leap-Frog' Delivery Clips Costs 32

Price 35 Cents



Excellent balance of properties makes Shell Chemical hexylene glycol a superior coupling agent, penetrant, humectant, dispersant, wetting agent, high-boiling solvent . . . with a cost advantage, too.

Among its many other useful properties, hexylene glycol has the lowest specific gravity of all glycols. This fact can be a source of savings when you buy by the pound and sell by the gallon.

But no matter which of its properties you may have use for, there is no better source of high-purity hexylene glycol than Shell Chemical. Conveniently located bulk depots assure prompt shipment. And multi-solvent shipments via compartment tank cars or trucks can result in substantial savings to you.

Your Shell Chemical representative will gladly discuss your solvent requirements with you at your convenience. Write for your copy of Technical Booklet SC:50-1, Hexylene Glycol.

SHELL CHEMICAL CORPORATION
CHEMICAL PARTNER OF INDUSTRY AND AGRICULTURE
380 Madison Avenue New York 17, New York

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver

"Lead is one of our most economical refinery tools!"

Careful cost analysis shows that increasing the amount of lead—even up to 3 cc.—is generally the most economical way to obtain that additional increment of octane improvement. In fact, gaining those last few octane numbers by lead may cost less than half as much as by any other incremental improvement method.

Add to this the fact that using lead doesn't take a cent of capital money . . . and you can see that "Ethyl" antiknock compound is one of your most economical refinery tools.

We're glad to offer the services of our refinery technologists to help you analyze the economics of those last few octane numbers in your refinery. Your Ethyl representative can arrange a meeting with one of our specialists.

ETHYL CORPORATION
New York 17, N. Y.

It's good business to use "Ethyl" fluid

PIN POINTED FOR SERVICE

Youngstown has 28 district sales offices conveniently located throughout the nation to serve you quickly. They are staffed with men who know the steel business thoroughly and are qualified to help you with your steel requirements. You can get quick service whether you write, wire or phone your nearby Youngstown District Sales Office.

QUALITY YOUNGSTOWN SERVICE

DISTRICT SALES OFFICES

Atlanta 1, Ga.
1310 Healey Building
Phone Walnut 5920

Boston 16, Mass.
250 Stuart Street
Phone Liberty 2-5855

Buffalo 2, N. Y.
1508 Liberty Bank Bldg.
Phone Washington 6270

Chicago 2, Illinois
111 W. Washington Street
Phone Franklin 2-5470

Cincinnati 2, Ohio
1302 Carew Tower
Phone Main 1424

Cleveland 13, Ohio
2400 Terminal Tower Bldg.
Phone Main 1-2605

Columbus 15, Ohio
2850 LeVeque Lincoln Tower
Phone Capitol 4-7211

Dallas 2, Texas
1602 First Nat'l. Bank Bldg.
Phone Riverside 9538

Denver 2, Colorado
814 Continental Oil Bldg.
Phone Main 3-2283

Des Moines 9, Iowa
437 Insurance Exchange Bldg.
Phone 3-1265

Detroit 2, Michigan
926 Fisher Bldg.
Phone Trinity 5-5816

Grand Rapids 2, Michigan
604 Michigan Nat'l. Bank Bldg.
Phone 9-4291

Houston 2, Texas
1350 Esperson Bldg.
Phone Fairfax 1325

Indianapolis 4, Indiana
520 Circle Tower
Phone Melrose 2-3461

Kansas City 6, Mo.
1222 Commerce Bldg.
Phone Victor 5837

Los Angeles 15, Calif.
714 W. Olympic Blvd.
Phone Prospect 7581

Milwaukee 3, Wisc.
2110 Wisconsin Tower
Phone Broadway 1-5148

Minneapolis 2, Minn.
1050 Baker Bldg.
Phone ATlantic 2970

New Orleans 12, La.
520 Whitney Bldg.
Phone Raymond 0153

New York 36, New York
500 Fifth Avenue
Phone Lackawanna 4-4340

Philadelphia 2, Pa.
1502 Girard Trust Bldg.
Phone Rittenhouse 6-9830

Pittsburgh 22, Pa.
Two Gateway Center
Phone Atlantic 1-2350

St. Louis 3, Mo.
611 Shell Bldg.
Phone Geneva 6-1223

San Francisco 5, Calif.
55 New Montgomery Street
Phone Garfield 1-6544

Seattle 4, Washington
457 Central Bldg.
Phone Main 6420

Tulsa 3, Oklahoma
1305 Philtower Bldg.
Phone 54-4634

Washington 5, D.C.
327 Bowen Building
Phone Republic 7-2340

Youngstown 1, Ohio
505 Stambaugh Building
Phone Riverside 7-0771

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices: Stambaugh Building - - Youngstown 1, Ohio
Plants: Youngstown, Ohio; Struthers, Ohio; Indiana Harbor, Indiana

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS

PETROLEUM WEEK

Publisher — Harry L. Waddell

Editor — Herbert A. Yocom

●

Senior Editors — Glenn Green, Jr. (Houston), W. M. Jablonski, J. P. Mosher, Jr., Robert E. Spann.

News Editor — James M. Sutherland

Assistant Managing Editor — Richard M. Machol

Assistant Editors — William P. Sterne, Glenn Dietrich, Halsey Peckworth, Georgia Macris, Ade Ponikvar, Leo M. Murray; *Chicago* — Leonard Castle, Frank Holman; *Detroit* — Holger Ridder; *Houston* — Marvin Reid; *Los Angeles* — Richard Elwell

Presentation Director — William A. Caperell, Jr.

●

Washington News Bureau — George Bryant, Manager; Glen Bayless; *Oil Specialists* — A. R. Patla, Clyde LaMotte, Roy Calvin, Ernest Conine, Dean Reed; *Staff Writers* — Alan E. Adams, Carter Field, Jay Flocken, Boyd France, William Gilmour, Sam Justice, Donald O. Loomis, Gladys Montgomery, Arthur L. Moore, E. William Olcott, Morton A. Reichek, Caroline Robertson, Vincent Smith

Domestic News Bureaus

Atlanta — W. H. Kearns, Frances Ridgway; *Cleveland* — Robert Cochran, William N. Troy; *Los Angeles* — John Shinn; *San Francisco* — Margaret Ralston; *Correspondents* — Albuquerque, Austin, Bakersfield, Bismarck, Boise, Cheyenne, Cincinnati, Corpus Christi, Dallas, Denver, Fargo, Great Falls, Honolulu, Jackson, Lake Charles, Memphis, Minneapolis, New Orleans, Oklahoma City, Phoenix, Pittsburgh, Portland (Ore.), Sacramento, Salt Lake City, San Diego, Seattle, Shreveport, Spokane, Tulsa

Foreign News Bureaus

Editor — John Wilhelm; *London* — Edward W. S. Hull; *Paris* — John O. Coppock; *Bonn* — Gerald Schroder; *Rio de Janeiro* — Peter Weaver; *Mexico City* — John H. Kearney; *Tokyo* — Dan Kurzman; *Bombay* — Gordon Graham; *Correspondents* — Amsterdam, Beirut, Buenos Aires, Cairo, Caracas, Edmonton, Havana, Istanbul, Johannesburg, Karachi, Lima, Manila, Melbourne, Ottawa, Regina, Rome, Vancouver, Vienna, Winnipeg

Economics Staff — Dexter M. Keezer, Director; Robert P. Ulin, Peter J. Davies

●

Advertising Sales Manager — Ervin E. DeGraff

Business Manager — Richard H. Loyer

Advertising Service Manager — John E. Thompson

Assistant to the Publisher — George Reid (Houston)

●

Other McGraw-Hill Petroleum Publications

NATIONAL PETROLEUM NEWS
PETROLEUM PROCESSING
PLATT'S OILGRAM NEWS SERVICE
PLATT'S OILGRAM PRICE SERVICE

Vol. 1, No. 5—PETROLEUM WEEK—August 5, 1955

Published weekly by McGraw-Hill Publishing Co., Inc., James H. McGraw, (1860-1948), Founder.

Executive Editorial, and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Publication Office, 871 N. Franklin St., Chicago 10, Ill. Donald C. McGraw, President; Paul Montgomery, Executive Vice President; Joseph A. Gerardi, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice President, Publications Division; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising; J. E. Blackburn, Jr., Vice President and Circulation Director.

Subscriptions: Address correspondence to Petroleum Week, Subscription Service, 330 W. 42nd St., New York 36, N. Y. Current single copies, 35¢. Subscription rates, all countries: $3 for one year, $4 for two years, $5 for three years. Orders must indicate company, industry division, and position.

Second class mail privileges authorized at Chicago, Ill. Printed in U. S. A.

Copyright 1955 by McGraw-Hill Publishing Co., Inc. All rights reserved.

NEW

Solvent-Acidic Cleaner

O. C. 85

Designed to Speed-Up Your *Very Difficult* Cleaning Jobs.

Deposits that build up in refinery processing units are quite complex. That's why it has been usually necessary to use two different types of cleaning compounds to remove them. Often, a heavy-duty alkaline or solvent cleaner was first circulated to remove grease and-oil. Then followed the application of an acidic material to remove carbonaceous deposits, iron oxides and sulphides.

Now, Oakite Research offers a brand NEW highly-efficient cleaner . . . Oakite Compound No. 85. This versatile, single-package compound combines the excellent soil-removing properties of both acidic and solvent type cleaner. On *difficult* cleaning jobs especially, this one compound —O. C. 85—speeds up the removal of greases, sulphides and oxides and saves extra rinsing time and cost.

When used as recommended, circulation of Oakite Compound No. 85 gives you these BIG advantages:

- ★ **extraordinary cleaning action of two materials in a single cleaning operation**
- ★ **deep penetrating action that knifes through heavy soils quickly**
- ★ **long, economical solution life**
- ★ **rinses freely and completely**
- ★ **safer and more effective than raw commercial acids**

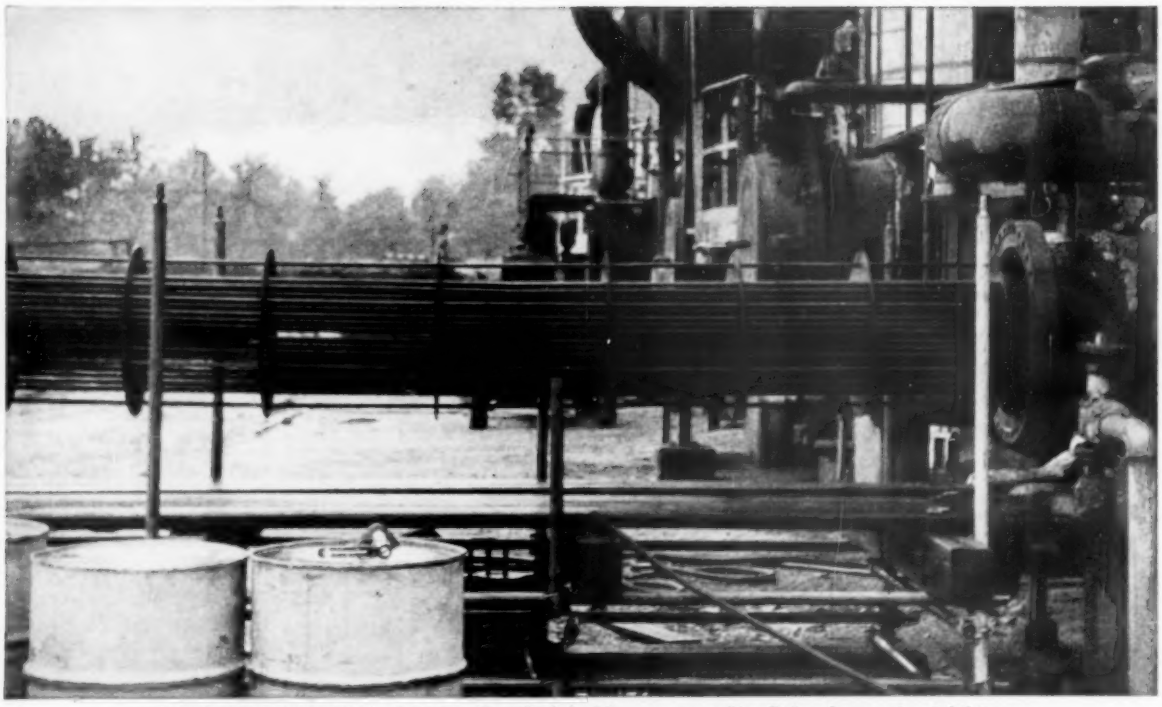
This fine "two-in-one" compound is especially recommended for cleaning and conditioning:

- ★ De-ethanizers
- ★ Debutanizers
- ★ Feed Stock Pre-Heaters
- ★ Absorbers
- ★ Stabilizers
- ★ All Heat Exchangers

For complete technical data on Oakite Compound No. 85 send for Special Bulletin B-3751. See your local Oakite Technical Service Representative or write Oakite Products, Inc. (Petroleum Service Division), 39 Rector Street, New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE

Technical Service Representatives in Principal Cities of U. S. and Canada



READY FOR INSPECTION—This bundle, which had been protected by Polyrad corrosion inhibitor, was pulled for inspection as part of the regular maintenance program.

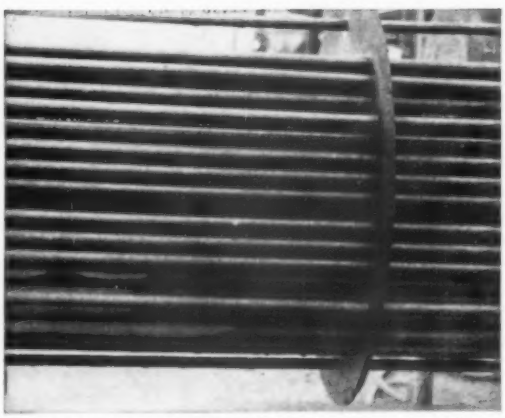
QUICK TURN-AROUND

Turn-around Time no longer need be headache time—not when Polyrad costs so little.

An average treatment is about 1 quart of Polyrad corrosion inhibitor per 1,000 barrels of fluid. That's all it takes to prevent excessive down time for cleaning or replacing fouled and corroded refinery equipment.

Polyrad's detergent action is so powerful that in many cases fouled equipment can be cleaned up while in operation. Organic and inorganic deposits don't have a chance to collect in Polyrad-protected equipment. They are quickly loosened and removed in the fluid stream. That's why all around the refinery, Polyrad helps maintain throughput, increases heat transfer, and cuts down time for maintenance.

Stocks of Polyrad are maintained throughout the country. A Hercules technical representative will be glad to discuss its application to your specific operating conditions.



NO NEED TO REPLACE—Polyrad corrosion inhibitor had done its job well, as this close-up shows. Still clean and free of corrosion, the bundle was returned to service immediately.

Pine Chemicals Division,
Naval Stores Department
HERCULES POWDER COMPANY
INCORPORATED
904 Market Street, Wilmington 99, Del.

POLYRAD®
FILMING AMINE INHIBITOR

NA55-3

60-Second Summary / WHAT'S HAPPENING IN OIL

AT-A-GLANCE PETROLEUM WEEK Copyright

August 5, 1955

dept/INDEX

Production	19
Refining	23
Transportation	26
Marketing	32
Washington	6
Key Prices	34
The Market Trend	35
Statistics	36
Editorial	40
International	28
Oil Men at Work	38
Special Report: Offshore Oil—II	14

Oil demand potential in the rest of the world is so prodigious that it could sop up much of the Middle East supply, ease the pressure for imports into this country. . . . p. 12

•

Residual fuel oil yields are down this year to 15.8% of each barrel of crude, compared with 24.9% in 1946. This means that refiners are closer to eliminating surplus residual supplies as a perennial problem. . . . p. 23

•

Fate of natural gas legislation will be decided between now and January by what members of the Senate hear and learn back home. The Harris bill surmounted its biggest hurdle in clearing the House by a six-vote margin. . . . p. 10

•

Heat is being put on the Administration to take action on oil imports —enough heat so it probably cannot be ignored for long. In an open letter this week to Defense Mobilizer Flemming, 27 senators noted "with growing concern" the "continuing excess" of imports, demanded to be told what Flemming plans to do about the situation.

•

Six-month financial reports firmly set a 1955 pattern of healthy sales and earnings for the big oil companies. . . . p. 11

•

Conflicting conservation principles are plaguing oil regulatory groups in several states. They are finding it hard to encourage peak ultimate recovery from old wells and at the same time promote finding of new reserves —both within the limit set by over-all allowables. . . . p. 9

•

Deadlock holding up mainland oil development in Italy may be broken, now that center and left political groups give signs of getting together on a compromise petroleum law. . . . p. 30

•

Petroleum distribution patterns will be reshaped when Southern Pacific R.R.'s $30-million products pipeline between El Paso and Los Angeles goes into service early next year. . . . p. 26

•

A quick-acting chemical compound has been harnessed into a cutting tool for instantaneous slicing of oil well tubing and casing. . . . p. 19

•

Rise in gasoline consumption is likely to be slowed if, out of fear of inflation, government moves to curb credit for automobile purchases, causing fewer cars to be bought. . . . p. 25

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau

August 5, 1955

A compromise plan on highways, embodying both bond financing and some new taxes, is the best bet when Congress comes back. Republicans won't try again to put across the Eisenhower bond plan. Neither will Democrats renew their efforts to pin all the cost on tax hikes. Instead, they are apt to get together on a middle ground: Pay part with tax increases (which would be smaller, more widely spread than the ones proposed this year), and finance the remainder with long-term bonds.

•

Congressional witch-hunting for dollar-a-year men will continue. Prime targets include government oil officials. Look what happened to Franz von Schilling, assistant director of the Interior Dept.'s Office of Oil & Gas. Von Schilling was formerly London manager for Caltex, and the Justice Dept. had been digging for evidence of conflict of interest. This week von Schilling resigned from OOG, went back to Caltex, which had been after him to return anyway.

There's been no indication of illegal activity, but the Administration isn't satisfied with that. Aware that election year is coming up, the GOP wants to make sure there is no ground for charges of "unethical" action by dollar-a-year men. The Talbott affair has made the White House particularly sensitive on this point.

Government planners are apprehensive. Losing industry-trained men would hurt now—could hurt even worse later by making industry gun-shy about lending experts in time of emergency.

•

The Justice Department is in a dilemma over its oil conservation assignment, doesn't know just what steps to take to carry out the congressional mandate to ride herd on state agencies. Here's the present thinking: Send some Antitrust Division attorneys down for talks with the Texas Railroad Commission and others—to sort of feel their way along. The purpose is to determine whether conservation agencies are being used to fix prices or markets.

•

The West Coast crude pipeline is getting a new look from defense officials. A congressional subcommittee has asked the Joint Chiefs of Staff for their views on whether a Texas-to-California crude oil line, proposed by L. M. Glasco, is essential to defense. Other defense officials have said it was "desirable," but wouldn't recommend government aid in getting it built.

•

Oil didn't fare badly in Congress this year. The oil imports battle created some intra-industry ill will, but no one appears to have been badly hurt by the middle-of-the-road course which finally evolved.

The industry didn't win the fight to free natural gas producers, but it didn't lose, either. By getting the bill to exempt producers from federal controls through the House, it set the stage for an early push next year to gain Senate approval. On most other matters, oil about held its ground.

Next year may be tougher, because of acrobatics by the politicians to catch the voter's eye. Keep alert for new attacks on the industry by candidates seeking campaign issues.

Why **Bob Holeton** works from the ground up

One sticky summer afternoon, Bob Holeton found himself repeatedly leafing through a mass of drawings and specification sheets in the refinery chief engineer's office. It was a difficult location problem facing these men.

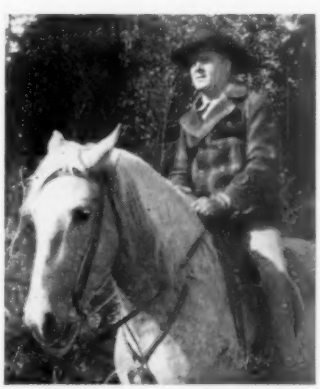
Finally the chief engineer stood up, and a relieved smile lighted his face. "By gosh, Bob," he said, "for a while I thought we might be stymied. I wasn't so sure we could afford to build on the swamp. I even thought we might have to give up some valuable tankage. But I'm convinced now, that these plans make the whole thing possible."

Just six months after this meeting, a new tetraethyl lead blending plant was put into operation by Bob Holeton on the site selected. Its foundation had taken root in the soft ooze of the swamp. But, thanks to specially designed piling, the structure stood firm and safe, and the important tank area was left intact.

Bob Holeton had been able to help this refiner solve a special problem because of the way he works. Instead of offering just a pat, packaged formula, he delves thoroughly into the matter—frequently with the help of other Du Pont engineers.

As a result, his suggestions—whether on blending plant design or antioxidant treating procedures—are tailored to meet individual oil company requirements. And the way Bob Holeton works is typical of all the Du Pont Petroleum Chemicals Division sales-service representatives.

If *you* are considering building a new blending plant, one of our representatives will be glad to help you with *every phase* of the project . . . starting with site selection, through design, construction, and even the training of operating personnel.



Although BOB HOLETON is also a handy man with an automobile engine, he relaxes with horsepower of a different kind. He is a veteran Du Ponter who joined the Company as a chemist, became a Petroleum Chemicals Division representative in 1949 and is now manager of the Seattle district.

DU PONT

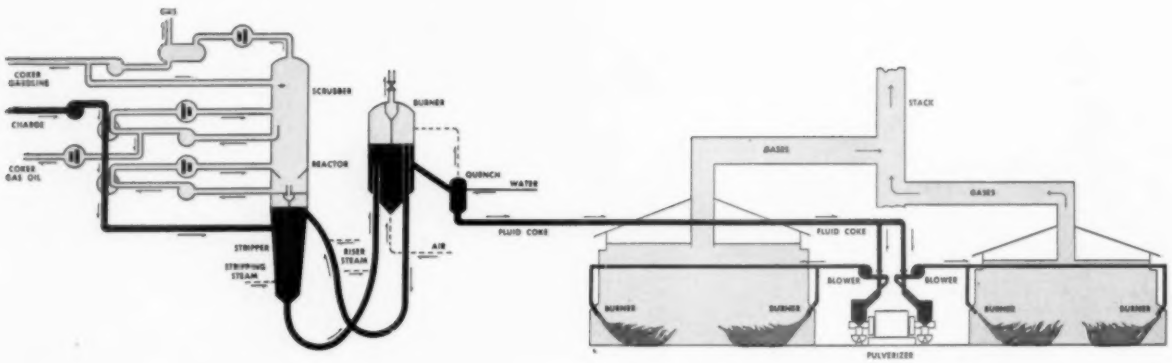
Better Things for Better Living . . . *through Chemistry*

Petroleum Chemicals

E. I. DU PONT DE NEMOURS & CO. (INC.) Petroleum Chemicals Division, Wilmington 98, Delaware

fluid coke

its production ...and utilization



IN THIS latest application of the fluidized-solids technique, developed by Esso Research and Engineering, heavy residua and asphalts can be converted to gas, oil and coke.

As shown in the flow diagram above, finely divided coke particles flow between two vessels — a burner and a reactor. In the burner, part of the coke stream is burned to supply the heats for vaporization, cracking and losses. When this hot coke meets the feed in the reactor, coking results and the liquid products are flashed off.

The vapors from the reactor pass into the scrubber-fractionator section where they are separated into gas, gasoline and gas oil.

THE USE of fluid coke as a fuel is illustrated in the above simplified diagram of two heaters designed by Foster Wheeler for a large oil company. They will supply the heat requirements for the atmospheric and vacuum sections of the highest capacity crude distillation unit in the world, having a combined heat absorption capacity of 336,400,000 btu per hour.

The pulverizers which reduce the particle size of the fluid coke before it is burned in the furnaces, as well as the pulverized coke burners, are also of Foster Wheeler design.

Designs are also available for the burning of fluid coke in steam generators.

Foster Wheeler's experience in the design of equipment for both the production and utilization of fluid coke will be of value to any process plant interested in converting heavy residua into cracking stock and making effective use of the resulting solid fuel. For further details on this process, or for proposals to meet your specific requirements, write to *Foster Wheeler Corporation, 165 Broadway, New York 6, N.Y.*

FOSTER WHEELER

LONDON • NEW YORK • PARIS • ST. CATHARINES, ONT.

THE TEXAS RAILROAD COMMISSION, like other regulatory bodies, is grappling with the problem of old vs. new wells as . . .

States Face Proration Quandary

Conservation and consternation are becoming synonymous in the "proration" states. Oil regulatory bodies must encourage peak ultimate recovery from old wells, yet they must promote finding of new reserves—both within over-all production quotas.

States like Texas, Oklahoma, Kansas, New Mexico and, to a certain extent, Louisiana, are feeling the strain of this task. The strain will be apparent at meetings of the regulatory groups in most of these states this month.

These groups believe over-production is wasteful, hence not sound conservation practice. But with this fear of waste in a flooded market is the equal fear of waste underground. So while production of flush new wells is restrained to prevent over-production, marginal and stripper wells and booming secondary recovery projects keep pouring more and more crude into the monthly quotas.

Marginal and stripper wells—their production no longer able to meet minimum allowables—are not prorated by regulatory bodies. Wells in these categories contribute, individually, almost negligible shares of a State's over-all daily quota. But together, since more and more fields are aging into the marginal and stripper stages, their unprorated production is taking a more and more significant slice of the total quota.

At the same time, many more fields which have slipped below allowable production rates are being restimulated by artificial methods—the so-called secondary recovery procedures—wherever reservoir conditions so warrant. Water and gas injection are the most used of these procedures. Most of these projects are achieving spectacular success. And these projects, too, are usually exempt from proration, even though the amount of crude they produce may approach or surpass production from primary-operating fields.

Added to the quota-crowding by old wells and secondary recovery operations is the competition to flush wells from:

- **Casinghead gas,** found in the same reservoirs as crude and mostly in amounts far exceeding the quantity of crude. This used to be "flared" or burned off. At the insistence of conservationists this can no longer be done. Casinghead gas must be recycled into the reservoir, converted into gasoline and other marketable hydrocarbons which compete with crude itself, or sold to pipeline companies. A bbl. of gas liquid is equal, roughly, to 1½ bbl. of crude in terms of gasoline on the market. Next in the picture is . . .
- **Imports,** over which the regulatory bodies have no control but which they must take into account when determining how much room there is in the market for crude from their individual states. The final pressure is due to . . .
- **Bonus production,** the extra output allowed to the operator of a discovery well as a reward for his help in expanding the nation's known crude reserves.

When the exempt production and the amount of imports in the market are added up, finding room in the quota for the discovery allowable becomes a ticklish task for the regulators. One leading regulator, a member of the Texas Railroad Commission, proposes abolishment of the bonus altogether. Commissioner Olin Culberson, who first proposed the extra allowable in Texas as an incentive for wildcatting, thinks it has "about served its usefulness."

The bonus gives a higher allowable to each discovery well for 18 months, or until the discoverer completes six development wells in the new field. This helps the operator recover his investment more quickly—which, in turn, helps him to finance still more exploration. And the "guarantee" of high initial production also enables him to raise capital from outside sources if necessary.

"The little man—if there is any left

—is no longer in such a financial bind" (that he can't get money for drilling operations), says Culberson. "I don't think it would slow down exploration if we took away the discovery bonus."

The pinch on primary production is attributed to different causes in each proration state, but all foresee an increasing squeeze.

In Texas, for instance, abolishment of the bonus allowable would relieve little of the pressure now on primary producers. Bonus production from discovery wells plus the normal "new" production from wells completed each month account for only about 4% of Texas' total 3-million-plus b/d allowable.

Casinghead gas conversions, on the other hand, contribute almost 500,000 b/d, and secondary recovery and other favored operations raise the total exempt production to almost 1 million b/d—about a third of the August quota.

Oklahoma, unlike Texas, has no immediate concern about casinghead gas conversions because most of its present production is from shallow wells with low gas-oil ratio.

In Louisiana it's the completion of one new well after another which is primarily cutting the allowable for all. In Kansas and Illinois, the marginal wells and secondary recovery operations, as in Oklahoma, are slicing deeper and deeper into the production quotas.

Stripper production is protected by law in most states; casinghead gas conversion is unquestionably in keeping with conservation ideals, and proposals to clamp down on secondary recovery projects draw stiff opposition.

Of these three, the secondary recovery operator is the most vulnerable. He usually gets his exempt status from the regulatory bodies, whereas the operators of stripper and marginal wells often have the protection of separate state laws.

The secondary recovery operator, though, argues that after putting new money into his field to achieve maximum exploitation of the field's reserves, he has as much right to recoup his investment as the operator with a flush primary producer. And many regulators agree with him.

Culberson says Texas can't, in good faith, restrict the secondary recovery operator after granting him exempt status as a reward for conservation. On the other hand, Dr. George H. Fancher, director of research for the Texas Petroleum Research Committee, says, "The time may come when the secondary recovery wells must bear a share of the proration burden."

Meanwhile Oklahoma, in which water-flood and other unallocated production account for some 60% of the state's 550,000 b/d total allowable, already limits water-flood production. And it's getting more strict about who can water-flood, and where. The projects are technically unprorated, but water-flood operators are limited to producing "at a rate considered to be the minimum efficient operating rate."

This restriction doesn't curtail water-flood projects too drastically, since the word "efficient" can be liberally interpreted. Some operators claim interruption causes irreparable damage to the project, for instance—and such claims are often allowed.

A mammoth surge in market demand, of course, would solve the problem for all of the oil regulatory bodies. But this solution desn't seem likely to arrive soon.

In the meantime, the state regulatory groups are not getting much help from other sources in dealing with the problem.

Officers of the Independent Petroleum Assn. of America, for example, will take no stand on the question. They don't care, officially, whether old or new wells produce the most oil, as long as the production is domestic.

And the Interstate Oil Compact Commission spent two years on it and came up with a disagreement.

An alternative help, according to men like Earl Turner, executive secretary of Texas Independent Producers & Royalty Owners Assn., would be to cut imports to a "supplement, not supplant" level. "This country," he says, "would be barely able to keep up with its increasing market demand from increased domestic production except for the imports."

But imports are beyond control of the state bodies. Maybe there is no solution. This thought, though, is not going to comfort the regulatory bodies —who must find answers anyway.

Gas Bill: Round 2 Will Tell

Debate over legislation freeing natural gas producers from federal control will shift to the home states of Senate members during the next few months. Whether the Senate follows the House in approving the law depends on the outcome of these home-front activities (page 40).

The Harris bill had a close call in the House last week. It squeaked through after one of the most bitter debates of the year, by a vote of 209 to 203. The final outcome might have been different except for Speaker Sam Rayburn. He took the floor to say he favored the Harris bill because he was convinced it would mean more gas at a lower price to consumers in the long run.

Though Democratic leadership maneuvered the bill in the House, Republican votes turned the trick. Those voting for the measure included 122 Republicans and 87 Democrats; opponents numbered 67 Republicans and 136 Democrats.

Rep. Oren Harris (D., Ark.), author of the bill, said it would meet the basic producer objective of escaping federal regulation as a public utility. Producers would be entitled to a "reasonable market price"—a new term which includes such factors as relation to other prices in the same field or area, effect on future supplies, and whether the price was arrived at competitively.

Opponents, led by Rep. Charles A. Wolverton (R., N. J.), argued that "reasonable market price" will end up as the highest price in the field. They believe the whole regulatory concept of the bill will be thrown out by the courts.

Their loudest argument—and you'll hear this one plenty in the months ahead—is that the bill will cost the consumer millions of dollars: That it aims at bailing out "a few giant producers who are hiding behind the skirts of the little fellows."

Harris counters that the bill safeguards the consumers in three additional ways.

- In practice, no pipeline could increase its rate on the basis of a new or renegotiated contract with a producer, unless the FPC rules that the new contract is based on a "reasonable market price."
- Escalation clauses will not be recognized as bases for rate increases unless an FPC review says the increased price is a "reasonable market price." This includes existing escalation contracts, but doesn't control those calling for fixed increases at specified times.
- If a price in such an escalation clause is higher than the reasonable market price, the pipeline company pays the lower price and the producer is prohibited from abandoning service.

All major amendments to the Harris bill were beaten off. Three proposed changes were adopted: (1) FPC control over imports and exports was knocked out; (2) provision against

abandonment was spelled out; and (3) pipeline sales to local distributors for resale to industrial customers were brought under the same FPC rules already governing other sales.

Right now, backers of the measure are confident they have the Senate votes to assure its passage at the next session. But they preferred not to press their luck at this session. Proponents feared that debate on the legislation would cause a filibuster, an action not likely to win friends.

Proponents say 64 out of 96 Senators are more or less committed for the Fulbright bill, the Senate version of the Harris bill. They concede that enough of these are "shaky" to rule out any overconfidence.

But backers of the bill figure they have a trump card to keep the legislation from falling victim to "election year jitters." They are confident that Senate majority leader Lyndon Johnson (D., Tex.) will be back in command in January. They figure he will use his considerable influence for quick and favorable action on the measure.

But the bill has opponents in the upper house and one of these is Sen. Paul Douglas (D., Ill.). During the debate on the Kerr bill in 1950, Douglas roadblocked action for two days. His comment on the Fulbright bill: "This one is twice as bad."

A Douglas spokesman says the Senator will not "filibuster" against gas legislation in the next session, but would "clarify issues."

Before January, opponents of the measure (including self-styled "consumer" spokesmen) will attempt to reverse the odds. They see the gas controversy as a good horse to ride during the 1956 election campaigns.

Philadelphia Mayor Joseph Clark, a leader of the "mayors' committee" opposed to the bill, vows his group "will continue to do everything it can to prevent this dangerous legislation from being enacted."

Industry might speak up during the recess. Russell B. Brown, general counsel of the Independent Petroleum Assn. of America, says the industry should use the recess to "counteract a lot of bad information" being spread among consumers by opponents of the legislation.

Meanwhile, the proposed investigation into the costs of interstate transmission and local distribution of gas appears destined for a slow but sure death. Harris, author of the proposal, says he will renew his request for an investigation. But session-weary members of the House Interstate & Foreign Commerce Committee are hardly in any mood for such an inquiry.

First Half of '55 —

How Oil Companies Fared Financially

	Gross Income		Net Income		
	1955	1954	1955	1954	% Change
	(figures in thousands of dollars)				
Texas	.....	.....	$124,834	$97,481	+28.0
Houston	$18,118	$16,416	3,739	3,118	+19.9
Sun	.....	.....	24,407	20,407	+19.6
Richfield (LA)	123,347	102,061	14,635	12,394	+18.1
SO (NJ)	3,071,000	2,792,000	344,000	293,000	+17.4
Gulf	.....	.....	91,871	80,796	+13.7
Shamrock*	20,327	17,636	3,661	3,256	+12.5
Phillips	430,016	392,007	42,576	37,919	+12.3
Socony Mobil	.....	.....	97,000	88,000	+10.2
Plymouth	.....	.....	3,895	3,350	+6.3
SO (Calif.)	693,468	549,567	109,343	104,044	+5.1
Skelly	110,266	104,634	14,823	14,184	+4.5
Continental	254,460	247,616	22,172	21,859	+1.4
Ohio	126,684	127,355	19,551	19,493	+0.3
Shell	713,466	655,610	54,497	63,436	—4.1
Union	175,049	177,558	16,309	17,688	—7.8

*6 mos. ended May 31

Profits Rise Sharply

Oil men now have some figures on paper to confirm what they have pretty well known all along: 1955 will be a big year in the oil business.

Six-month financial reports show that the net profits of two industry giants—Jersey Standard and The Texas Co.—reached all-time highs. Standard of California broke its own record for sales. And most of the companies that have reported so far (table, above) earned more this year than in the very satisfactory first half of 1954.

With reports in from about half of the big oil companies this week, a 1955 pattern of healthy sales and earnings is firmly set.

Jersey Standard's jump of 17% in net profits (the company had "a beautiful first quarter") came mostly from increased sales abroad, although domestic business was good. Texaco's record earnings, on the other hand, resulted largely from U.S. gains—in refinery runs, in pipeline movements, and, particularly, gasoline sales.

Standard of California's record gross income is tied to mushrooming oil demand on the West Coast. Standard says that rapid population and industrial growth, plus big shipments of heavy fuels to other areas, have increased total oil demand 10%-11% in the Pacific states this year.

Profits of many companies are being affected by large dollar outlays in the search for crude. In 1954, such costs came to 65% of total capital expenditures by the industry. And they are continuing high this year.

Even the companies with earnings declines did well.

Shell's profit drop of 4% is something of a mirage. The company's six-month sales were up almost 9%. But it chose to write off $18-million more of its heavy production costs this year than in 1954 (deducting them from gross income). Also, Shell's 1955 earnings were bucking a very good report for the first six months of 1954.

Contributing to Union of California's 8% drop in earnings were a 20% increase in the company's exploration budget and a sharp cut in first-quarter military oil purchases.

Oil companies are now predicting that business the last half of the year will be just as good as the first. Oil demand should continue high (PW—Jul.8'55,p9). With prices generally firm, the profits outlook is very good.

Texaco sees "nothing in sight" to cause trouble. Jersey Standard predicts "a satisfactory year." Shell forecasts "continued sales gains across the board." And Standard of California expects demand to continue high in its western market.

PETROLEUM COMMENTS

By W. M. Jablonski

Rosy 'Long-Term' Picture Comes a Lot Closer

When the Texas oil producer—with his wells cut back to a 15-days-per-month schedule—reads the current crop of astronomical oil demand forecasts for the year 1975, or 2000, he's apt to agree with the Irishman's remark:

"What the hell did posterity ever do for me?"

The lease owner wants to extract the oil he has struggled so hard to find, and to convert it into something tangible for himself soon—not in the year 2000, when he probably won't be around anyway. Nor can he warm today's bank balance with 1975's rosy outlook.

* * * *

It doesn't look, however, as if he'll have to wait anywhere near that long for a good upturn.

Everyone is already familiar with the way U.S. demand is surging ahead this year, well above earlier forecasts. The first half of this year has jumped about 7% over the rate for the corresponding 1954 period.

Almost as important to the U.S. producer is the even more phenomenal overseas growth. The potentially vast oil markets of Europe and Asia are the natural outlets for the huge crude reserves of the Middle East. If these markets continue to mushroom as rapidly as they are doing now, they'll sop up much of the Middle East supply, and ease the pressure for imports into this country.

* * * *

We in the United States have become accustomed to thinking of this country as consuming the vast bulk of the world's oil. Foreign growth, while sometimes impressive in terms of percentages, has been generally regarded as picayune in actual volumes.

This is fast becoming out of date. True, as recently as 1947 the free world's foreign demand totaled a mere 2.5-million b/d. But by 1954 it had more than doubled, to 5.2-million b/d. This year it's expected to rise to at least 5.8-million b/d. That's a gain of 600,000 b/d in one year—larger than the 570,000 b/d rise anticipated in domestic (nonexport) U.S. demand in this same year.

* * * *

Latest studies indicate the industry can look for impressively higher demand, not merely 25 or 50 years hence, but in the next 5 and 10 years, too.

Even on the conservative assumption of an annual gain of 4% in the U.S., scaling down to 3% in later years, domestic demand would jump from last year's 7.7-million b/d to a minimum daily rate of 10.2-million by 1960, and 12.0-million by 1965.

Abroad, conservatively assuming an annual growth of 8% initially, scaling down to 5%, the free world's daily use would soar from last year's 5.2-million b/d to 8.3-million by 1960, and 11.3-million by 1965.

This would mean a total free world demand of at least 18.5-million b/d by 1960. Thus, within five years the industry would have to supply at least 5.6-million b/d more oil than it did last year: 2.5-million more for the U.S. and 3.1-million more abroad. Within 10 years, the daily rate would soar to 23.5-million b/d—or 10.6-million more than in 1954.

* * * *

That's a lot of extra oil by any standards.

In this light, the country's reputed excess producing capacity of 2-million b/d looks much less burdensome, even allowing for future additions to capacity.

And the fabulous oil reserves of the Middle East—published at 100-billion bbl. but unofficially estimated closer to 150-billion—takes on a less awesome aspect.

* * * *

There's another point to keep in mind, too. Oil economists clearly are not the optimists that oil men in general are reputed to be. Looking at past performance, every single, long-term U.S. oil demand forecast has proved to be too low—often by big margins. Studies also show that forecasts of foreign demand since the war have fallen short of actual consumption by about 1-million b/d every five years—a proportionately whopping amount.

The same may well prove to be true of the above forecasts.

For instance, look at these potentialities:

- If Western Europe's per capita oil use (now about 5 bbl.) should rise in 20 years to the same as that in the U.S. today (about 18 bbl.), the region's demand would soar to about 12-million b/d.
- Asia, with its huge population, uses less than 1-million b/d (0.37 bbl. per capita). But its oil use is rising rapidly. If its per capita consumption should rise in 20 years only to where Europe is now (5 bbl.), its oil use alone would jump to 20-million b/d.

* * * *

This is merely a mental exercise, of course. But it illustrates how prodigious the potential is. If the pause in the cold war should now further spur economic growth, for instance, the effect on oil use could be startling.

And it all serves to underscore the continued need for maintaining a healthy, dynamic industry both at home and abroad. In 1954 American oil firms alone put $6.4-billion into capital expenditures in the U.S. and abroad. Without such outlays, financed almost entirely from ploughed-back earnings, the industry would be unable to continue the large-scale expansion of its facilities needed to keep pace with growing requirements.

Pipeline O.K.'d; Another Waits

A major natural gas pipeline project—one of two which may be the last big systems to be completed in the U. S.—won final approval last week. Chances look good that the other major project will win approval next month.

American Natural Gas Co., and its subsidiary, American Louisiana Pipeline Corp., won Securities & Exchange Commission approval of plans to finance a pipeline from Louisiana to Michigan. The clearance climaxes a long fight which was carried through the Federal Power Commission and federal courts, up to and including the Supreme Court.

FPC hearings on Pacific Northwest Pipeline Corp.'s proposals to import natural gas from Canada have been postponed until Sept. 19. Cross-examination will begin then on testimony given during the past two weeks. Construction began in June on the company's 1,446-mi. line, which has already been certificated to move San Juan Basin gas from New Mexico to the Northwest.

Approval of plans to finance American Natural Gas Co.'s $130-million Louisiana-to-Michigan pipeline was granted by the Securities & Exchange Commission despite dogged attempts by an old foe, Panhandle Eastern Pipeline Co., to intervene in opposition.

Panhandle Eastern tried hard to raise a "holding company" issue, claiming American Natural would own the pipeline, a utility company in Detroit, and another in Wisconsin. Though SEC's members gave American Natural's representatives a rough session during questioning, they ruled against Panhandle as an intervenor. About 700 mi. of the 1,100-mi., 30-in. line are expected to be laid this year.

Pacific Northwest has run into a snag on its plans to import 300-million cu. ft. daily of Canadian natural gas. But the difficulty—a question of who will buy the gas—is expected to be ironed out and FPC approval granted.

The hearings before FPC were going along smoothly until Pacific suddenly found itself without a customer for the Canadian gas. El Paso Natural Gas Co. was under contract to Pacific to buy 250-million cu. ft. of the total 300-million cu. ft. Pacific planned to import (PW—Jul.22'55, p24). El Paso, in turn, hoped to sell to Pacific Gas & Electric Co.

But PG&E tossed a monkey wrench into the proceedings when it refused to have any truck with the Canadian gas. It wanted to buy, through El Paso, gas piped from the San Juan Basin by Pacific Northwest Pipeline's system.

Pacific Northwest couldn't accept that proposition, however. It has already contracted to supply San Juan Basin gas to Colorado Interstate Gas Co. (Its original certificate was based in part on that assured market). And Colorado Interstate objects to any arrangement that would guarantee San Juan gas to El Paso.

So Pacific Northwest changed its application and asked to sell the Canadian gas to its own markets in Washington, Oregon, and Idaho—if El Paso fails to buy it.

However, there are indications the buyer dispute will be resolved by the time hearings resume. A spokesman for Pacific Gas says his company is willing to consider new proposals.

What's New / IN THE INDUSTRY

What Is "In Transit"?

When does crude oil stop being "in transit," thereby losing its nontaxable status? That is the important question now being heard by the Harris County Commissioners Court, in Houston. "In transit" crude is not taxable under Texas law, but crude "in storage or indistinguishable from the mass of oil" to be refined is taxable.

The court is hearing charges by county tax assessor Carl Smith that Sinclair Refining Co. owes property taxes on $228,840 worth of crude oil stored temporarily at its huge Pasadena refinery. Sinclair, which will present its testimony next week, maintains the crude is "in transit" from its statewide pipeline gathering system to its Marcus Hook (Pa.) refinery, and that it is merely being stored at Pasadena temporarily until a sufficient amount is on hand to warrant shipping by tanker.

Sinclair says that it has been "very careful" to set up operations so that the oil doesn't become a part of the common mass to be refined at Pasadena.

•

New Tankers Coming

Two significant tanker developments created deep industry interest this week. One is the Maritime Administration agreement with Esso Shipping Co. for trade-in of five T2 tankers as credit against construction of two super-tankers. The other is the report that Stavros S. Niarchos, Greek shipping magnate, intends to build two twin-screw tankers of 50,000 deadweight tons., largest in the world.

Maritime will pay Esso $5.5-million for the five old tankers, which will be added to the reserve fleet. The new tankers, to be delivered early in 1957, will be of 35,420 deadweight tons and have a length of 715 ft. They will have a speed of 18.3 knots. Approval of the new tankers brings to six the total number of tankers projected under the current trade-in-and-build program. (Funds are available under the original congressional authorization for two more. In addition, new funds have been authorized for the current fiscal year for 10 more tankers. But no contracts have been let for this series.)

Reports on the Niarchos plans are sketchy, but the proposed supertankers are expected to be capable of speeds between 20 knots and 22 knots. French yards are reportedly favored to win the valuable contract to build the tankers.

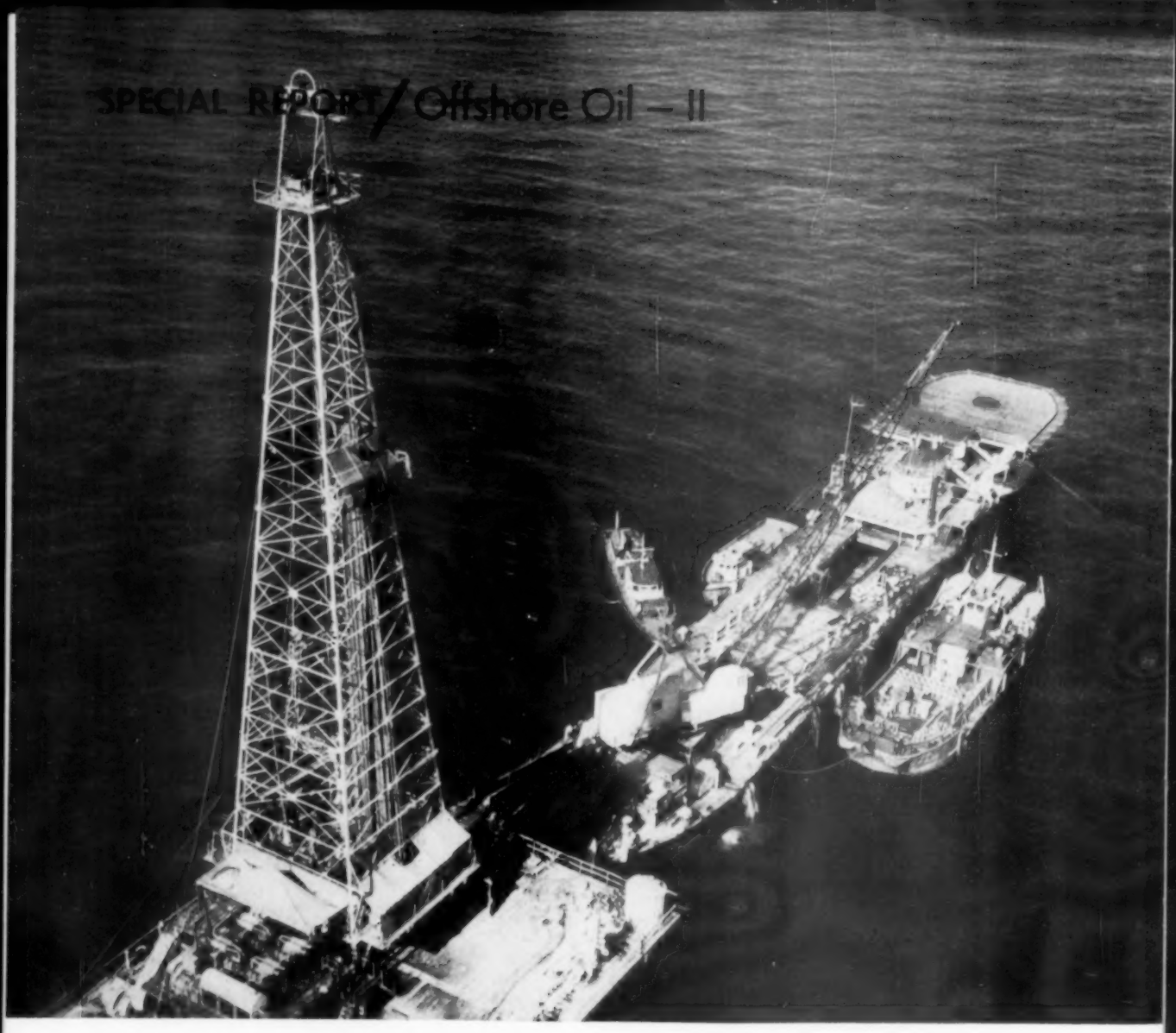
•

Another Socony affiliate was switched to Mobil. Socony-Vacuum Oil Co. of Canada, Ltd., has changed its corporate name to Mobil Oil of Canada, Ltd., effective Aug. 1. H. R. Moorman, general manager, says, "The chief purpose of the change is to the link the company's name more closely with our products, many of which contain the world 'Mobil' in their brand name."

•

The House Judiciary subcommittee began hearings late this week on Justice Dept. rules governing industry advisory committees; the law on "conflict of interest" between government posts and industry ties also will be reviewed.

Subcommittee staff members have indicated that the subject of the National Petroleum Council's independent status would come up, as well as the Foreign Petroleum Supply Committee and activities of WOC (without compensation) employees in the Interior Dept.'s Office of Oil & Gas.



On the Continental Shelf:

A Whole Raft of New Problems

SECOND OF THREE PARTS

Everybody's got troubles—but the offshore oil operator's troubles begin with a capital "T." They start the moment he asks top management for the money to explore for oil and gas under the sea.

Listen to one executive who is in charge of a multimillion-dollar offshore drilling and exploration program—and who recently brought in a dry hole:

"The front office really put up a howl. After spending millions for that lease they expected me to bring them in a multimillion-barrel oil reservoir instead of that million-dollar dry hole.

"Now management is reluctant to toss in another million or so to drill more wells. But I know, and they know, that if we let the lease go without testing it further, a competitor might later pick it up, keep plugging away at it, and find oil. If this happens, a lot of heads could roll."

Getting the necessary appropriation is a big hurdle for the offshore operator. But fast competition from other companies usually helps him over it. It presses the top brass into jumping in offshore with both feet.

The executive in charge of an offshore program is constantly spending millions to keep up with other operators. At the same time, he has to convince his top management that the huge investment is going to pay itself out eventually. As one operator puts it:

"We have a wonderful wildcat record on land. But my bosses seem to forget all about the dry holes we drilled in order to get that good oil

production. This offshore work is so new that we need to find a lot of oil to make the brass overlook the tremendous expenses and risks involved. It isn't as easy offshore as it is working on land, believe me."

Another operator has this to say about his predicament offshore:

"We have to rush into this offshore stuff as quickly as possible. It's vital to beat our competition, and come up with some profitable strikes. We've got to keep our equipment working, because idle machinery costs us about 80% of the expense of full operation. Demurrage on a big offshore drilling platform, tender ship, and rotary rig can run more than $4,500 a day."

Oil operators haven't sought much outside help in getting the money they need to work on the Continental Shelf. The expenditures are drawn largely from cash reserves—and sometimes the money comes at the expense of onshore drilling and development programs.

Leading bankers feel that as long as the offshore drilling and production operation remains in "strong hands," most operators will continue to finance their own future ventures. This will be the case, at least, until they've proved up some good production—something "bankable" on which they can borrow money from outside interests to finance further drilling offshore.

"But it's possible that even the largest oil operators may some day run into difficulty raising the necessary funds to continue their offshore exploration," one leading banker told PETROLEUM WEEK last week.

Conoco recently offered debentures to retire some outstanding debts, so it could channel more ready cash into its offshore operations.

Several companies have formed offshore operating combines in order to share the high costs and to avoid seeking outside financial assistance.

After the operator gets his money to enter the offshore play, he must obtain leases on which to drill. It's his job to buy the right ones in the right places, and at the right price, if he can.

Offshore leases can be acquired only through competitive bidding from the states under whose shores the submerged lands lie, or from the federal government. When a future lease sale is advertised, the operator must decide which lease he wants, and the amount of money, or bonus, he will pay for the specified tract. He submits his offer by sealed bid. The bonus payments for offshore tracts can run into the millions of dollars, as has been evident at recent state and U.S. lease sales.

One tract at the federal lease sale in mid-July, comprising 2,500 acres, brought $5.2-million. Another that size brought $5.1-million, and one 5,000-acre tract brought $7.5-million. Just how much any particular lease will bring at a sale depends on how favorable preliminary geophysical surveys indicate its prospects to be.

SUPPLY IS A BIG PROBLEM OFFSHORE. All equipment and personnel must be transported to the offshore location so operations can go on uninterrupted.

Such huge expenditures on undeveloped submerged leases place a terrific responsibility on the shoulders of the offshore operator, who must feel sure that such expenses will be justified in the end.

One major operator figures that, for the 64 offshore oil wells it has completed in the Gulf of Mexico, lease cost has totaled $32-million. This averages out to about $42 an acre—and the leases were obtained when they were "cheap." Estimating total recovery from the 64 wells as high as 500-million bbl. ultimately, lease costs will amount to about 6.5¢ a barrel. But had these same 64 wells been brought in on leases purchased at this year's going rate for submerged land, total lease costs per acre would have been up to $320, or around 49¢ per barrel of oil ultimately produced.

Geophysical prospecting is the first big operational chore facing the offshore operator. He usually has preliminary data or he wouldn't have bought his leases. But now he has to update this information so he can pinpoint the best drilling location.

The vice-president of a large company operating offshore says that about 250 first-class salt-dome structures have been located off the Louisiana and Texas coasts to date. He figures that geophysical costs in finding them have run to about $400,000 each on the average, or $100-million for all. Some operators feel estimate of the $400,000 cost per structure is not high enough.

Seismic shooting over water creates many problems not encountered on land. Shot holes necessary on land to eliminate appreciable low-velocity layers at the ground surface, aren't needed offshore. But the explosive charges used in shooting must be suspended below the water level, about midway from the surface of the sea to the bottom. They are detonated behind a seismic boat that slowly plys the area.

However, because it is not necessary to drill shot holes under the water, the seismograph work can be carried on offshore at a faster pace than on shore. This means somewhat more economical operation. An offshore seismic crew costs about $60,000 to $100,000 a month to maintain. On land the cost runs from $15,000 to $25,000.

Offshore, a seismic crew must know where it is when it makes its shots, if its work is to have any real value. In shallow water, conventional land methods are employed in making the surveys. But beyond sight of land in deep water, locations must be pinpointed by radar. Some of the navigational methods now in use are so accurate that a seismic crew can locate any small metal object which is dropped overboard.

On shore, the geophones and connecting cables used in shooting are planted individually in shot holes drilled over a pre-arranged pattern. After their reflections are picked up on

SHOOTING IN SHALLOW WATER for geophysical data is similar to operations on land. Party-crew member stands on portable platform, signals to survey boat as he lays out shot points. This operation is off Louisiana.

SHOOTING IN DEEP WATER requires geophones be towed behind shooting boat. Crew detonates shots in prearranged pattern as boat slowly churns water. Shots are detonated about halfway to the bottom.

the recording instruments following a shot, the geophones are picked up and moved to another location.

Offshore this method would take entirely too long. So the geophones are merely towed along in a pre-arranged pattern behind the shooting boat.

In addition to all of the problems involved in getting more accurate and detailed geophysical data in locating his offshore well, the operator must carry out special studies before he pinpoints the spot over which he will drill. One such is wave action over the general area. Some operators hire oceanographers, who charge about $2,300 for a complete study covering a single drilling location, up to $9,000 for several locations.

Once the operator picks a spot to drill his well, he's faced with a whole crop of new problems. He must get the right kind of equipment, and move it to location. Many times the right kind is not available, so he has to use what he can get.

The offshore operator may have some fancy plans of his own on the drawing board for new-type equipment which he thinks will do a good job. But he's in a hurry to start the bit turning, so most of the time he adapts what equipment he can get to his particular needs. He relies on improved operational techniques of his drilling crew to do a fast and economical job with what he has.

One of the biggest problems facing the offshore operator, as far as equipment goes, is whether to invest a quarter-million dollars or so on a permanent template-type platform which cannot be salvaged, or to rely on one of the newer-type submersible units which are now becoming increasingly available. Depth of water and prevailing winds are the deciding factors, usually, as to which type of equipment the operator chooses.

Once the decision is made on the base structure, the type of rotary rig the operator uses won't differ much from any used on land. And once the equipment is barged out to location and installed, drilling over water is the same as it is on land (picture, page 17).

NEXT WEEK in Petroleum Week

The period of improvisation is over in offshore oil.

Begins now the era of specialization—in tools, in equipment, in transportation, in producing and operating procedures.

Next week's concluding article of this three-part series will detail the major changes that are coming as offshore operators prepare to drill in really deep water, a long way from land.

When drilling gets under way offshore, the job of keeping the rig supplied, and moving crews to and from the drill-site, creates more problems.

The mobile rigs and tender ships now in use in the Gulf of Mexico can start out fairly well stocked to meet drilling needs. But any resupply must come by barge. The self-contained platforms must be supplied and resupplied by this method, and the operation of barges is tied closely with prevailing weather. On many days out of a given period, supply barges cannot operate due to high seas. So, large stockpiles must be brought in during calm weather to take care of any eventuality.

It is costing the operator hundreds of thousands of dollars a year to move the drilling and producing equipment, supplies, and personnel to and from the offshore locations. Boat companies up and down the coast are prospering as a result; building of supply barges, equipment, and personnel craft keeps Louisiana and Texas shipyards busy.

In many instances an operator prefers to have his own onshore base near his offshore operation, so he can stockpile huge amounts of spare parts and auxiliary equipment. When a drilling location is not too far from shore, the drilling crew often lives onshore in company-owned bunkhouses. The men are ferried out to location by boat or by helicopter. In the case of tendership operations or self-contained plat-

forms, the drilling and producing crew lives right on the ship or platform, changing shifts about once a week.

Even if the operator finds oil, his troubles aren't over. He has to install producing equipment, arrange for maintenance, make sure wells get adequate servicing. This all adds to the cost of production. Right now, it costs from two to five times as much to produce offshore as it does on land.

Transportation is the big expense. Building, buying, or chartering the necessary marine equipment, and hiring capable crews to operate it, are major factors. Even routine well-servicing, meter-reading, tank-gauging, are costly operations. Once production has been proved on an offshore platform, the gaugers, engineers, and other field personnel must keep a close tab on the production rate, performance of equipment, and maintenance.

A constant battle must be waged against the sea. Corrosion is a major problem; a continual painting job is always going on at permanent offshore structures. During rough weather crews cannot be landed on offshore platforms. During severe storms, all floating equipment must be shunted to sheltered areas, and all personnel, after securing well heads and other machinery on the structures, must be brought to shore.

Many operators are thinking of the day when remote-controlled producing facilities will become a reality. Then, in event of bad weather, the entire producing operation can be controlled from shore. In South Louisiana, Gulf Refining Co. is experimenting with both remote-controlled pneumatic and VHF-radio-operated producing facilities. In the latter, a production man can control individual flow valves on offshore wells as far as 70 mi. away.

Many factors combine to determine just how much more it costs an operator to produce a barrel of oil offshore than on land. In order to reach a figure, he must consider the water depth in which he operates, distance from land, the prevailing weather, rate of daily production, the size of his reserves, the method he employs in handling and transporting his oil, and his equipment, supplies, and men. He must add the cost of his service boats, production personnel wages, quartering facilities, and subsistence.

Also, there are lease lifting costs, including supplies, platform maintenance, paraffin cutting and other wireline services, pressure tests, field office and land-base upkeep, plus maintenance of elaborate communication facilities. Other fixed costs include taxes and overhead expenses.

Where crude oil goes into moored barges or central storage batteries from flowing wells, production cost may run about 80¢ a bbl., plus 15¢ to 25¢ per bbl. to move it to shore. The total of 95¢ to $1.05 a bbl. compares with 30¢ to 40¢ a barrel on land, plus transportation.

But operators feel costs of producing offshore oil will go down gradually. Reducing costs by application of new equipment and improved techniques has been offset so far by the constant march into deeper water, which raises over-all expenses quickly. But improved drilling and producing practices, coupled with better equipment, are expected to help cut the cost of operation still further.

Rate of production is a big factor. The offshore operator naturally wants to produce all the oil he can to get his money back quickly. But good conservation practices must be followed.

It is readily apparent to the offshore operator that, because of his tremendous investment, he must have a higher daily allowable for each well offshore.

Louisiana has recognized this problem. It has set up a sliding allowable scale, keyed to well depth. These allowables range from a minimum of 122 b/d, at 2,000 ft. depth, to a minimum of 311 b/d, for wells below 13,000 ft. By comparison, the minimum onshore allowable rate in the Pelican State is 37 b/d to 2,000 ft., 198 b/d to 13,000-14,000-ft., and 305 b/d below 16,000 ft. Onshore, a 10,000-ft. well has a daily allowable of 143 b/d; offshore the allowable is 251 b/d.

For some time Louisiana did not cut over-all offshore allowables as sharply as it did for onshore wells when the drop in market demand forced lower statewide proration. However, several months ago the state did lower the lid on offshore production so it could restore the percentage balance between onshore and offshore allowables.

Texas grants only a discovery allowable for offshore wells. It permits a higher rate of flow, keyed to depth, for the first five wells in any one operation. When a sixth well is drilled in any new discovery area, the extra allowable ends. If no more than five wells are drilled, the allowable runs for 18 months from the time the discovery well was granted its allowable.

The Texas discovery allowable starts at 20 b/d to 1,000 ft. in depth, increasing 20 b/d for each additional 1,000 ft., down to 10,000 ft. Beyond 10,000 ft., the permissible production is 200 b/d. It rises irregularly at 500-ft. intervals down to 14,000 ft., where top production is pegged at 540 b/d.

No decision has been made yet on who will handle proration and allowables on the federally controlled portion of the Continental Shelf. It is generally conceded, however, that the government will eventually leave the matter of proration up to the individual states off whose borders the federal lands lie. This is because each state has its own proration setup—and because the federal government wants no part of such regulation.

Arrangements must be made to get the oil to shore once it's found. Underwater pipelines seem the best answer so far, but many problems

RIG DUTIES ARE THE SAME, on land or sea. Here, crew pulls pipe during a round trip off the coast of Louisiana. Except for getting equipment transported to and installed at the well-site, drilling offshore is no different than on land.

THIS HOUSEBOAT IS "HOME" for a seismic crew. Drilling crews may live on such boats, too, but usually stay on platforms or at a shore field camp.

await the pipeliner who lays them.

Currently oil goes ashore on barges, which load from storage barges that are moored near the well-head or producing platform, or from storage tanks on platforms. The platforms contain all the usual production facilities, such as tanks, separators, heater-treaters, etc. Also, barges may pick up some limited production direct from flow lines.

The floating storage barge seems to be a fast-disappearing sight offshore, except as a temporary expedient. It works fairly well in shallow water, but heavier seas and safety hazards rule it out farther from shore.

Most operators today are using special storage platforms. In most cases, the drilling platform is converted to production facilities after the wells have been drilled. Usually, wells from several locations within a field feed into one centrally located platform, which contains storage capacity for several days' production. Barges pick the oil up from these platforms periodically.

Shell recently designed and installed a submersible type producing platform in the center of a group of producing wells. Flow lines are run from the wells to this platform, where the oil is separated from the gas, and picked up by barge.

Oil can be funneled ashore by pipeline for about 5¢ a bbl., but there must be sufficient proven reserves and an adequate daily production to justify the expense of laying a line. Underwater pipelines in the Gulf of Mexico run about $80,000 a mi.

Once offshore production has attained the necessary concentration, there undoubtedly will be a network of lines stitching most wells on the submerged lands together. On most wells offshore discovered so far, well-head pressure is sufficient to flow the oil to shore points. But on any flow lines that are laid from an offshore platform to land, provisions must be made for installing pumps. And flow lines will eventually need provision for pumps, too, so production can be kept moving once pressure has declined to a point where the oil won't move by itself.

Humble, in the Grand Isle area off Louisiana, has laid a flow line from a collecting platform offshore to land, where it ties in with an existing crude line.

Magnolia has laid natural-gas lines from offshore structures to land, where the gas is metered and entered into an existing natural-gas-transmission system.

There are only about 12 contractors who have proper equipment for laying underwater pipelines. So it will probably be some time into the future before any major network of underwater lines becomes a reality.

Adding to all of the operator's other headaches is the weather. It can bring havoc to his operation overnight, and imperil the lives of his men. Insurance must be sufficient to handle any eventuality. This adds to the costs offshore.

The dreaded hurricane season in the Gulf of Mexico comes between June and November. The largest storms can generate waves of 80-ft. height—with enough force to smash anything within reach.

High waves as such don't bother routine drilling on a fixed, self-contained platform where all machinery is stationary. But all of the submersible-type equipment, and all of the marine floating equipment is extremely vulnerable to such battering. All such equipment must be moved into port for safety until after the storm has subsided.

When crews and tender-ships move into port, the operator's expenses skyrocket. Not only must he pay full-time wages to all workers involved, whether or not they're working, but his drilling equipment, depreciating at a rate of thousands of dollars daily, lies idle.

The hurricane menace has led many an operator to subscribe to expensive private weather-forecasting services. Advance notice of an impending storm can save lives and costly equipment, and the operators feel the service is well worth its cost.

Between November and April, offshore operators are very often plagued by choppy seas. Although the waves are not large enough to interrupt all work, they bring inconvenience to the entire operation, and create a safety hazard for the crew.

Insurance coverage is even more important to the offshore operator than to the operator working strictly on land. The offshore oil man has an extremely high concentration of valuable facilities in one compact position, under hazardous conditions. The operator is usually helpless when a hurricane comes along or an explosion or fire occurs on his platform.

Premium rates on purely drilling and operating hazards, such as blowouts, are about standard. On the special offshore hazards, rates are based on experience. There's no set pattern on the forms of insurance coverage available; many policies are written for specific damage to specific equipment.

There has been a recent trend toward wrapping up such things as fire, wind, wave, wild well, liability, equipment damage, and many other factors into a single package-deal policy.

The cost of offshore insurance is high. One underwriter estimates premiums average 2.5% to 3.5%, or $25,000 to $35,000 per $1-million of coverage. The cost is even higher for certain types of policies.

Most of the problems encountered offshore have been solved so far. But more are ahead. As the offshore operator becomes more ambitious and moves farther out to sea in deeper waters, however, many more problems are bound to arise.

As deeper waters are entered, and drilling platforms move farther from shore, increased transportation, communication, and operational problems are certain to be encountered. But the drawing boards aren't empty. Engineers are hard at work on ways to lick anything that might arise in the future.

Next week, PETROLEUM WEEK will take a careful look at what they're planning — and at what the future holds for operators on the Continental Shelf.

Reprints Available

After Part III of this report has appeared, reprints of the entire report will be prepared; they will be available early in September. Single copies will be sent to Petroleum Week subscribers on request without charge. Additional copies will be available at 25¢ each. On orders for 11 or more, quantity prices will be quoted on request. Address orders to Editor, Petroleum Week, 330 West 42nd St., New York 36, N. Y.

Chemical Cuts Tubing, Casing

A quick-acting chemical compound which can dissolve steel with almost lightning-like swiftness has been harnessed into a cutting tool for instantaneous slicing of oil well tubing and casing.

Oil operators frequently find it necessary to cut tubing and casing underground, a sometimes difficult process in the narrow limits of a well bore hole. Mechanical, gun, and bazooka-type explosions have been used for this purpose, but each has its limitations and drawbacks.

Developers of the new chemical cutting tool are McCullough Tool Co., Houston, and Pennsylvania Salt Mfg. Co., Philadelphia. They say it is faster, more efficient than the mechanical cutters now used for 2-in. and 2½-in. pipe, and that it makes a smoother, neater cut on larger jobs than the explosive type cutters generally used on larger diameter pipe and casing.

The same chemical used in pipe-cutting can also penetrate underground formations, thus establishing the tool as a potential perforating instrument. (Perforating, to form cracks and fissures in tight oil-containing formations, is now done by bullets or bazooka-like use of explosives.)

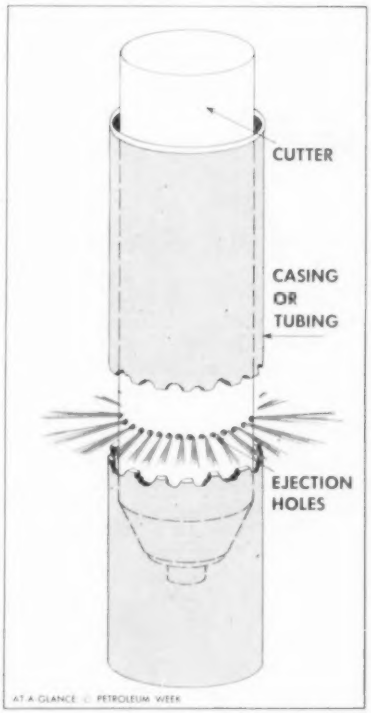
Research already is under way on an even more revolutionary aspect of the chemical device: its possible use as a tool for faster drilling of extremely hard formations—a job that's tough even for diamond drill bits. Thus far, it appears that this use might be restricted to very special cases because the cost for the quantity of the chemical necessary in rock drilling for any appreciable distance probably would run quite high.

The exact nature of the chemical compound is not being made public. Basically, it is composed of bromine and fluorine.

The chemical can be packed and shipped with complete safety. The Interstate Commerce Commission already has approved interstate shipment.

The instrument in which the chemical is used (diagram above) is a heavy-walled cylinder equipped with a pressurizing chamber and a firing head. Closely spaced holes ring the cylinder of the chemical compartment.

The device is lowered into the pipe on a wire line. Specially designed latches hold it in place where the cut is to be made. An electric cable is attached to trigger the mechanism.



HOW IT WORKS: Cutter is lowered into tubing to place where cut is to be made, and jets of chemical are sprayed through closely spaced holes in the cutter against the inner wall of the tubing severing it completely and neatly.

In action, the chemical is sprayed against the inner wall of the pipe. Because of the spacing of the holes in the housing of the tool, the jets of chemical overlap as they penetrate the metal, completely severing it.

The dissolving action takes place only where the chemical comes into contact with the pipe, so there is no damage to the surrounding area of pipe or adjacent casing. The cut is about the width of a thin pencil mark.

One advantage claimed for the chemical cutter is that it does not bulge the pipe outward, as explosive-type cutters generally do. This prevents possible damage to other segments of the pipe and casing, and permits application of a tool over the pipe to lift it.

McCullough and Pennsalt have been working on the chemical cutter for years. W. G. Sweetman, McCullough's director of explosive research, is an expert on explosives, jet tools, and wire line devices for oil well servicing. Pennsalt's research team, John Gall, Henry Miller, and Fred Loomis, were active in developing the first successful fluorine cell and made the first shipments of anhydrous hydrogen fluoride and of elemental fluorine. Pennsalt has also brought its experience to bear on the selection of the best compounds and on methods of packaging, loading, storing, and handling them.

The chemical cutter has already been used successfully for months on 2-in. and 2½-in. tubing in commercial operations down to thousands of feet.

McCullough is now gearing up for mass production of the device. A casing cutter will also be available commercially in the near future.

Wyoming Field Has Large Gas Potential

The Greater Clareton area of Wyoming's Powder River basin is shaping up as a bigger gas producer than previosuly had been expected, according to a preliminary study completed for the state's Oil & Gas Conservation Commission. As a result of these findings, the commission has extended its closedown order for gas producing wells in the field until Aug. 20 to prevent waste of gas.

The commission will have to decide then whether to lift its shutdown order or to make a further extension pending a complete evaluation of the field's producing potential.

A preliminary survey of the field made by Core Laboratories, Inc., placed the total daily average potential production of the field at 18,952 bbl. of oil and 58.5-million cu. ft. of gas. Out of 608 wells tested, 167 were found to have gas-oil ratios in excess of 5,000-to-1. These are the ones that have been classified as gas wells.

One natural gasoline plant now operating in the field by Black Thunder Oil & Uranium Corp. processes 2-million cu. ft. of gas daily. A second plant is under construction and will be able to process another 6-million cu. ft. A third plant may be built. The Dolly-Fairfield interests of California have been negotiating for gas-supply contracts in the area and have indicated a gasoline plant would be built if adequate supply can be arranged.

What's New / IN PRODUCTION

Elk Hills Wildcat Spudded

The second of three planned wildcats for 1955 in the Elk Hills (Calif.) Naval Petroleum Reserve has been spudded by Standard Oil Co. of California, unit operator for the Navy. This test will be drilled in the western part of the 46,000-acre area, known as Naval Petroleum Reserve No. 1. It is projected as a 5,350-ft. test of the Olig sand, where geologists hope to find a previously nonproduced condensate pool.

The California Naval Reserve has increased in importance in the California petroleum supply picture since the start of congressional hearings on the proposed West Texas-to-California crude oil pipeline. West Coast Pipe Line Co. is seeking federal financial assistance for this projected line.

Opponents of the line argue that enough oil can be found in California fields and the Elk Hills Reserve so that, combined with imports from Canada, it can supply the state's oil requirements without the proposed pipelines. The production potential for the reserve is estimated at 100,000 b/d. It is believed additional production will be found in the deeper formations underlying the field, which have never been fully evaluated.

The first of the 1955 wildcats failed to find new production in the Carneros sand. It was drilled to 8,376 ft. and was plugged back and completed in the shallower Stevens sand, a proved Miocene pay zone. The third exploratory well is planned as another test of the Carneros.

•

New Try at Carrizo Plains

Shell Oil Co. will drill a new exploratory well in California's Carrizo Plains area, considered the state's foremost "graveyard of wildcats." This area, 50 mi. long and 10 mi. wide, is located between two producing areas —the Cuyama Valley and the West Side fields in Kern County.

Since the discovery of oil in the Cuyama Valley in 1948, an extensive wildcat drilling program has been conducted in the Carrizo Plains area, but so far no major production has been found. More than 60 "dusters," totaling more than 240,000 ft. of hole, have been drilled.

Shell's new test will be located about a mile northwest of an earlier Shell well drilled which recovered a small amount of high-gravity oil at a depth below 8,000 ft. Shell's first well found enough oil to keep interest alive, but not enough to make it a commercial producer.

•

Canadian Drilling Rises

Western Canadian well completions appear to be headed for a new high in 1955, based on drilling during the first half of the year. Completions this year through June in the four western provinces and the Northwest Territories totaled 1,149 wells, a gain of 229 wells, or 24.9%, over the first six months of 1954.

The 1955 first-half drilling program has resulted in 801 new oil wells, 72 gas producers, and 296 dry holes. June was the peak month of the period, with the completion of 266 new wells. These consisted of 182 oil wells, 10 gassers, 72 dry holes, and 2 salt-water-disposal wells.

Since the first of the year, 603 wells have been completed in Alberta, 372 in Saskatchewan, 148 in Manitoba, 23 in British Columbia, and 3 in the Northwest Territories.

•

Alberta's Whitecourt region, a rank wildcat area between the Sturgeon Lake area and the Pembina field, drew attention last week with an indicated discovery by the Windfall No. 12-36 well.

The wildcat is being drilled by Canadian Fina Oil, Ltd., in a joint operation with Stanolind Oil & Gas Co. and Hudson's Bay Oil & Gas Co., Ltd. It is 70 mi. southeast of Devonian production at Sturgeon Lake.

The well has had good shows of natural gas, condensate, and light-gravity crude oil. The latest test indicated the well had cored through the gas-oil interface in the D3 zone of the Devonian. Recovery on this drillstem test was 450 ft. of condensate-cut mud and 450 ft. of oily condensate. Maximum gas flow on the test was measured at a rate of 4.9-million cu. ft. daily.

•

Continental Oil Co. plans to consolidate its Texas-Gulf Coast exploration divisions into one division with headquarters at Corpus Christi. Formerly the company had two separate divisions, headquartered at San Antonio and Corpus Christi. The company also plans to transfer its Texas-Gulf Coast production division from San Antonio to Corpus Christi.

•

The Pembina field has become Canada's second largest producer. The field, newest of Western Canada's big discoveries, produced 49,037 b/d in the week ended July 18. This placed Pembina ahead of the Leduc-Woodbend field which had been in second place.

The Redwater field which, like Pembina and Leduc-Woodbend, is in Alberta, continues to be the nation's top producer. Its mid-July production averaged 105,237 b/d. Alberta had 5,494 producing wells as of July 18, of which 920 were in the Redwater field and 380 were in Pembina.

•

Idaho had its first producing well last week—a gas well that flowed at a rate of 400,000 cu. ft. a day. This well is Oroco Oil & Gas Co.'s No. 1 Johnson; it has been shut in for lack of a market. The well is in Payette County, about 25 mi. southeast of Vale, Ore., where both Sinclair Oil & Gas Co. and El Paso Natural Gas Co. have had gas shows.

•

A potential source of natural gas for New York City may have been found last week only 125 mi. northwest of the big metropolis. The discovery was made by Dome Gas & Oil Corp. at Panther Mountain, near Shandaken, in Ulster County, with completion of its No. 1 Herdman well.

Production tests of the well were not reported, but Sidney Lieberman, president of North Star Oil & Uranium Corp., parent company of Dome, said results of the discovery were so encouraging that a second well will be commenced in the near future.

Transcontinental Gas Pipe Line Corp. holds an optoin to buy Dome's gas at 27½¢ per 1,000 cu. ft. The company, which already supplies New York City with natural gas from Texas, has announced that it will build a pipeline from Ulster County to the city if sufficient gas reserves are found. Dome has leases on about 25,000 acres in Ulster, Greene, and Delaware Counties.

Lagging Public Construction — A Spreading National Blight

The most recent editorial in this series dealt with the plans of American industry for expanding and modernizing its plant and equipment over the next four years. These plans call for the expenditure of $113 billion over that period. There is a good prospect that the money to carry them out will be available. If the plans are carried out, manufacturing capacity at the end of 1958 will be double that which existed at the end of World War II. And this industrial plant will be modernized.

In sharp contrast to this picture is the condition of our *public* plant and equipment — the roads, schools, water supply, health and sanitation facilities upon which industry, as well as the average family, depends. **According to a recent estimate by the Twentieth Century Fund, the people of the United States must spend almost $100 billion on new public works projects during the next five years merely to meet the minimum needs of our growing economy.**

Other estimates by the President's Council of Economic Advisers, by state agencies and by private construction economists all show the same condition: a staggering need for public works. Yet no steps have been taken that even offer a promise of closing the gap between the public facilities we are building and the greater facilities we really need.

How did we come to let our public facilities fall into this sorry state? Here are some of the reasons:

(1) During the years of depression and war, from 1930 to 1945, these facilities were neglected. New construction declined, and even maintenance was cut.

(2) Since the end of World War II, increased construction costs have made it difficult for communities to get the needed construction with the funds budgeted in the past for that purpose.

(3) The great postwar upsurge in population, and the spreading of our population into new areas, has created a huge demand for additional community facilities before the neglect of earlier years could be made up.

Responsibility Divided

Now the need for more public construction has become apparent to everyone, on jammed highways and in over-crowded schools. But, unfortunately, the responsibility for doing something about this situation cannot be so clearly fixed as can the responsibility for maintaining industrial facilities. A business firm must expand its capacity when markets are growing or lose its trade position. It must modernize its plant and equipment or be undersold by more efficient competitors. In the case of public facil-

ities, there is no such competitive incentive. To be sure, a city or state may lose population and industries if its public facilities are inadequate. But such shifts are very slow to take place and difficult to relate to any specific public program, or lack of it.

Moreover, the responsibility for constructing public facilities is divided between state and local governments and federal authorities. Within each of these governmental units there are specialized bureaus or departments with varying responsibilities. This division of responsibility obviously adds an element of difficulty to the development of an adequate program of public construction.

Breaking the Log-Jam

How can this administrative log-jam be broken and the financial difficulties overcome?

One course would be to have the federal government step in with a nation-wide new program of direct spending on public works. That would utilize the resources of the federal treasury for immediate action. But there are weighty objections to such extensive federal participation. One is that federal spending cannot be greatly enlarged without a corresponding increase in the federal control of decisions that normally have been left to local communities. Another objection is based on the fact that so long as we must maintain a large defense establishment, such an addition to federal spending means either higher taxes or a chronically unbalanced budget.

The other course is to rely primarily on local initiative, but with new and more effective federal aid to local governments. Such aid would help speed up planning and construction, and contribute toward a solution of the most burdensome financing problems, but in amounts sufficiently limited to require that most of the capital be raised locally.

No Single Formula

No one formula can be applied to make such aid effective. The raising of funds for new schools, for example, involves problems very different from those of financing highways, or water-works, or hospitals. But it does seem clear that, in all these fields, the federal grants must be designed to stimulate more local planning and financing than has prevailed in the past. Among the new ideas that may offer such incentives are federal grants for planning and initial costs and federal guarantees of local bond issues. Such aids have been remarkably effective in the fields of slum clearance and public housing.

While the federal government clearly has a role to play, we cannot afford to postpone inauguration of an adequate public construction program while we seek a formula to apportion governmental participation that would be generally accepted as ideal. Every year about 2½ million more Americans are putting increasing pressure on a public plant already dilapidated and inadequate. The result is an increasing menace to comfort, health, education and safety. It is also an increasing menace to the effective performance of American industry.

The appropriate public response to this situation is a driving public determination to eliminate this increasingly dangerous lag in public construction. At this juncture, the development of such a determination is basic. Nothing stands in the way of an adequate program of public construction that a determined electorate cannot remove.

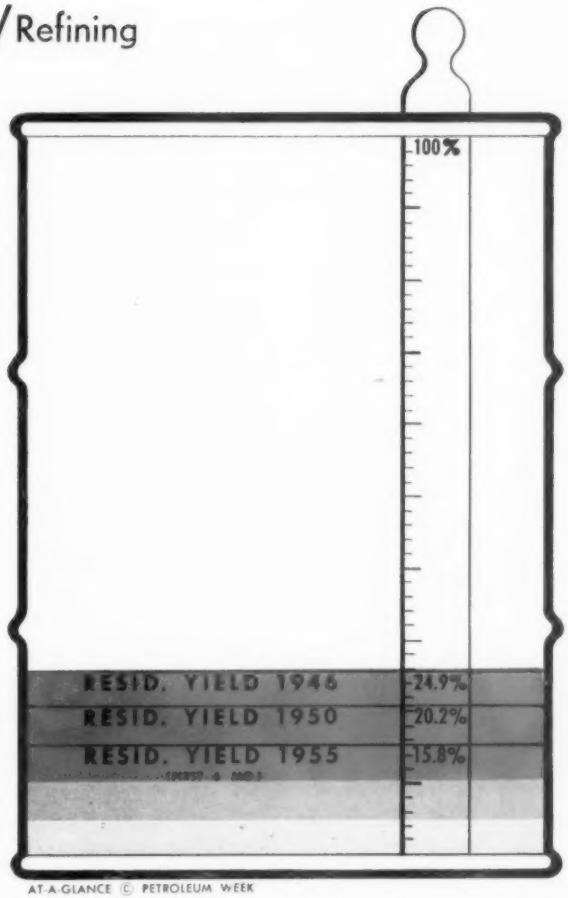
This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald C. McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.



Less Resid Means More Profits

Refiners are well along the road towards eliminating surplus residual supplies—a problem that has plagued the whole industry for years. Since 1946 (chart) resid yields have been cut from 24.9% of each barrel of crude oil to 15.8% this year. And it will be possible to reduce these yields even further.

True, the current strong residual market is due largely to a better-than-expected demand, which, in the first six months of 1955, was 7.8% higher than a year earlier. Also, the inflow of foreign resid to the U.S. hasn't been quite as high as was expected, due to both increased demand abroad and pressure here to "hold the line" on imports.

But over the long run, lower refinery output of resid will be the important influence in preventing excessive supplies. These surplus inventories in the past have kept resid prices low—frequently at levels below costs.

Lower refinery yields of resid result from new techniques—and improvements to older methods—for upgrading a substantial volume of residual feedstocks and blending stocks for making higher quality and more profitable "light" products. The benefits of these developments will be of even greater significance in future years if growth of residual demand should be slowed by a decline in industrial activity.

These refining techniques include the long-used coking processes, to which a few new twists have been added recently, improved visbreaking processes, and such new methods as hydrocracking and hydrodesulfurization. Some of the processes developed in the past couple of years have already been improved to bring about still further reductions in residual as an end product.

These various fuel oil reduction or upgrading processes give refiners flexibility to adjust yields of products to rapid changes in market demand.

Refiners are already benefiting from lower residual yields. High demand coupled with the limited supply has forced prices for residual in the Mid-Continent from 98¢ a bbl. in mid-1954 (the low the year) to a range between $1.75 a bbl. and $2.15 a bbl. today. There is a good possibility prices may go still higher.

Higher resid prices tell only part of the story. Refiners now get more light products from each barrel, to supply the rapid growth in demand for gasoline, jet fuel, diesel fuel, and light heating oils. And with their new flexibility of capacity available, refiners will always be able to turn out more residual should temporary—or long-term—shortages occur.

The basic point is that, by holding the supplies of domestic-produced residual to a volume that can be marketed at a profit, refiners no longer will have to make up losses from residual sales by cutting into profit margins on other products.

An important sidelight is that lower resid yields mean less worry in the industry over competition from coal. Both resid and coal find their biggest markets as industrial fuels, and many users are able to switch from one to the other depending on price. Coal producers are making a strong move to capture some of the markets from resid. One indication of this drive is the development of a pipeline to move coal to markets at a cost well below current rail charges. (PW—Jul.22'55, p13.)

For domestic producers, the growth in fuel oil upgrading and reduction capacity means that refiners will be able to process larger quantities of low-gravity, high-sulfur crudes to produce light end products. Due to the high yields of residual fuel in these lower-quality crudes, they have always been avoided by domestic refiners when higher-gravity oils were available.

Thus, prices for these crudes are less; in the past year, they have even been reduced in many areas while the general crude oil price structure remained firm. But to the producer, costs of finding and producing low-quality crudes are no less than those for high-gravity oils.

These refining developments are of particular importance to producers in California, where the output of heavy crude is relatively high, and where prices have suffered due to the lack of markets in the area for the large volumes of residual fuel produced.

Cutbacks in domestically produced residual mean that the industry will rely more and more on imported residual to meet industrial and bunkering requirements for heavy fuel. Residual imports, as such, or resid refined from imported crudes from the Caribbean

and Middle East fields can compete more economically in the heavy fuel markets than resid produced from higher-cost domestic crude. And the availability of lower-gravity crudes abroad is expanding at a far greater rate than in the U.S.

The trend of residual supply during the first half of this year points strongly in that direction. Total demand for resid amounted to 303.9-million bbl., up 19.3-million bbl. over the like 1954 period. Domestic output of resid, however, declined by 4.8-million bbl. from the year-ago period, to 210.9-million bbl. Meanwhile, imports of resid in the first half of 1955 increased 12.6-million bbl., to total 81.4-million bbl. According to industry estimates, resid imports so far this year were curtailed by 70,000 b/d (3.8-million bbl. in the January-June period) to keep within the import-volume recommendations of the President's Fuels Policy Committee.

Supply of residual in the Caribbean area—the big source of offshore supply to the U.S. East Coast—has tightened considerably as a result of higher demand both in this country and abroad. Venezuelan oil, which at one time was all but crowded out of European markets by Middle East oil, now finds ready buyers in the United Kingdom (PW—Jul.8'55,p91) and on the Continent.

European resid demand is growing fast (up 23% in the U.K. in the first four months of this year) as its industrial expansion continues. Coal supplies are tight, and, particularly, the new European refineries are set for high yields of light products, and thus do not produce enough resid to satisfy industry's needs.

The combination of tight supply and good demand, both in the U.S. and abroad, means that domestic refiners today find resid prices high enough so that a profit can be made by selling resid rather than upgrading it into light products. As a rough rule of thumb, refiners say resid prices at the refinery have to be in the range of $2-$2.25 a bbl. to insure a proper profit margin. And Mid-Continent prices have reached this level.

What's New / IN REFINING

Aurora Gasoline Co. is installing a UOP Rexforming unit as part of a $5-million modernization program now under way at its Detroit refinery. The company is expanding its refining capacity by converting an existing UOP Platforming unit to a Rexforming unit by addition of the new selective octane extraction process which separates the highest octane components from the Platformate, returning the remainder to the Unit for further upgrading.

The Rexformer will have a design capacity of 5,500 b/d; it is expected to be on stream by January, 1956. Output of the new unit will be used as a blending material in the production of Aurora's high octane premium gasoline. Fresh feed to the Rexforming unit will consist of a naphtha cut, derived from a mixture of Wyoming and Illinois-Mid-Continent crudes.

•

Tide Water Associated Oil Co. is boosting gasoline production at its Avon (Calif.) refinery 30% with construction of a 42,000 b/d fluid coking unit. The unit will hike output to 57,000 b/d.

The ultra-modern installation, 11 times larger than the only other such plant in operation, is scheduled to be finished in May, 1956. Bechtel Corp. is building the coker, designed by Esso Engineering & Research.

Also scheduled to be built at the refinery are a 24,000 b/d hydrodesulfurization unit, a gas recovery plant and service buildings. The fluid cat cracking unit will be enlarged.

Tide Water officials announced earlier this year that the firm intends spending $20-million on the Avon plant.

•

Reconstruction of Wilmington Gasoline Co.'s fire-damage absorption plant is under way at Terminal Island, Calif. The plant suffered damage estimated at $750,000 in an explosion and fire last week. It went back on stream this week at 25% of its normal 3,000 b/d capacity. Reconstruction of the plant, which processes natural gasoline, butane, and propane, is expected to take six months.

•

A 50,000 kw. electric power plant will be built at the site of Tide Water Associated Oil Co.'s new refinery at Delaware City, Del. Officials of Delaware Power & Light Co. and Tide Water have agreed in principle on the provisions of a contract calling for the utility to build and operate the plant, which will provide the power needed by the refinery.

•

Construction began this week on United States Oil & Refining Co.'s $10-million refinery at Tacoma, Wash. The 15,000 b/d installation is expected to be finished by December, 1956. Though the plant reportedly will have several catalytic units, company officials have not revealed how many there would be, or of what type. Comedian Chico Marx was master of ceremonies at the ground-breaking last week.

•

Sinclair Oil & Gas Co. has forwarded to contractors plans for construction of its modern gas products plant in Hulldale Field, Tex. Sinclair officials said this week that the plant initially will have compressor capacity to gather and compress 12-million cu. ft. of gas a day, with processing equipment designed for 20-million cu. ft. of gas a day.

The officials estimate the plant will recover 48,000 gal. a day of products consisting of natural gasoline, butane, and propane. It is expected to be on stream by April, 1956. Construction is slated to get under way next month.

•

W. R. Grace & Co. of New York, is going to build an $18-million polyethylene plant under a license agreement with Phillips Petroleum Co. Grace officials say the license agreement includes use of the Phillips process and patent rights and the company's technical knowledge in the production of the plastic. Several plant sites throughout the country are under consideration, but no final decision has been made.

•

Refining capacity continues to break records despite a decrease in the number of refineries, according to a Bureau of Mines report this week. The bureau reports that capacity reached 8,420,630 b/d on Jan. 1—about 400,000 b/d over the total on the same day last year though the number of refineries dropped from 337 to 326.

Additional crude throughput capacity totaling 146,000 b/d was under construction as of Jan. 1, the bureau adds.

Tighter Credit Means Fewer Autos

Government authorities and private lenders are concerned about the rapid increase in credit for automobile purchases. Such loans increased 47% in the first half of 1955 over the first half of 1954. The agencies are especially concerned about the very easy terms granted in some cases—nothing down and up to 48 months to pay. They think it will mean trouble later on if the buyers can't pay up.

So you can expect instalment credit terms for new cars to be tightened. This will throttle down automobile sales in the months ahead. And this, in turn, may slow the rise in gasoline sales. For the past nine months—the whole current model-year to date—auto dealers have been selling customers who couldn't ordinarily afford new cars by offering easier and easier credit terms. For the months ahead, selling will be tougher. With stiffer payment terms, many of these marginal customers will have to settle for used cars.

* * * *

Earlier this year, no one in government was willing to tighten up on the automobile boom. But it's gone so far, and the rise in instalment credit has been so great, that the government can hardly avoid its responsibility to keep speculative lending within bounds.

The Federal Reserve Board no longer has direct authority to set instalment credit terms, as it did in 1950-1952. But it regulates the total amount of bank credit that's available to the whole economy. And, indirectly, it has plenty of influence with the policy makers in banks and in sales-finance companies. This influence is certain to be used to cut down on too-easy credit in the automobile field.

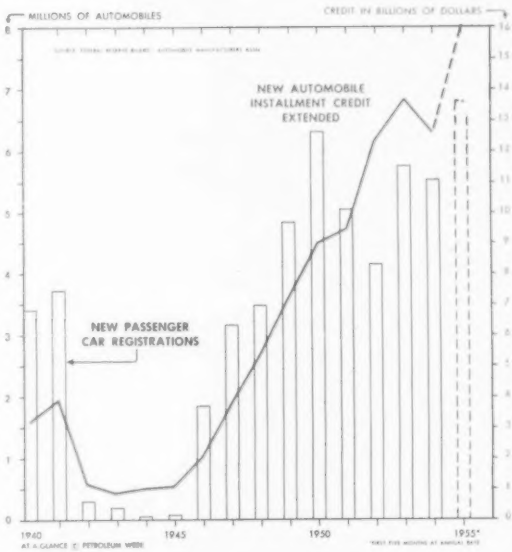
This doesn't mean shutting off credit, or even restricting it very much. What it does mean is fewer loans on very long terms, or with no down payment.

Big lenders in the auto field are reported willing to go along with the Fed on some moderate tightening of terms. They want to avoid the sort of boom and bust that would put their lending activities under direct regulation again. So, voluntarily, they'll be screening loans more carefully from now on.

The result is that it's going to be harder to move the 1956 model cars when they reach the showrooms this fall. They'll carry higher price tags. And used car prices are sliding—which cuts trade-in allowances. So if the customer can't get as big a break on credit his required cash outlay will be way higher, and the sale will be harder to make.

* * * *

Another difficulty arises in the used-car field. Credit is used extensively to finance used cars, as well as new ones. But the leading finance companies are getting



Instalment credit has given auto sales quite a boost in 1955; new loans to buy autos are up almost 50% from last year, and terms are much easier. About 2/3 of all new cars are now bought on credit. So if terms get tighter, fewer cars will be bought—which could slow the rise in gasoline use.

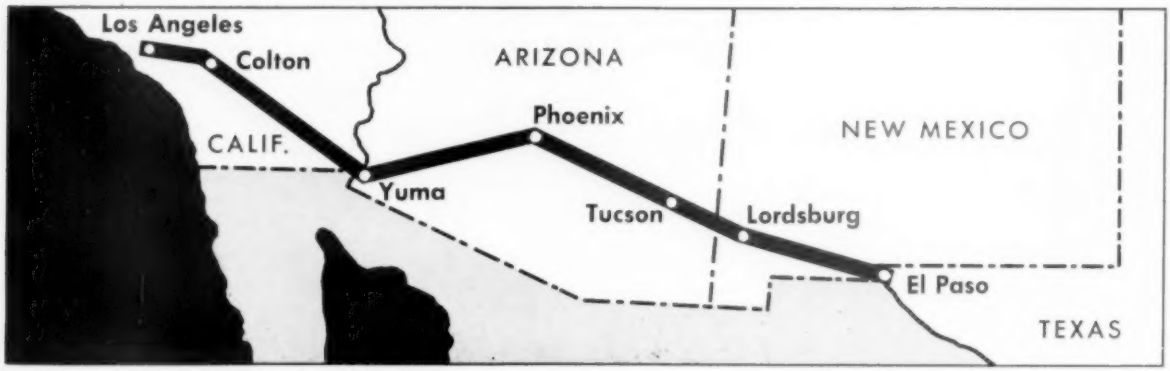
wary about these loans. The average price of used cars is dropping. It may drop a lot more as high inventories of new 1955 models are cleared out by sales to used-car lots. So the used car isn't as good security for a loan as it was, and terms here, too, may get noticeably tighter.

* * * *

The rise in automobile credit is only one phase, although it's the most important phase, of a general increase this year in instalment credit of all types. New instalment loans are being made at a rate that equals 14% of total consumer income (after taxes). That compares with 11% in early 1954, and only 9% in 1951.

Many economists feel that such a rate of borrowing is inflationary; it puts too much money in the spending stream at one time. And fear of inflation—not any desire to pick on the auto industry—is the motive behind government efforts to curb easy credit.

Since this is the motive, it seems unlikely that the tightening will go very far, or last very long. If 1956 starts out as an "off year" for the automobile industry, there will be less concern about inflation and terms may be eased again. The idea is to level off the boom, not to kill it.



New Pipeline Will Change Oil Flow

The Southern Pacific RR.'s $30-million products line now being built between El Paso and Los Angeles could completely reshape the petroleum distribution pattern in the areas it will serve.

When the line is completed, possibly by early next year, it will pump products in two directions toward Phoenix—east from Watson, just outside Los Angeles, and west from El Paso. It will serve areas in Southern California, Arizona, and the lower tip of New Mexico.

Initial capacity will be around 20,000 bbl. a day, but this may ultimately be stepped up to 40,000 bbl.

Just about everyone in the oil business along the route of the line will be affected. Some will benefit, some will be hurt, and many adjustments will become necessary. Here's the way the picture looks at this point:

Long-haul tank truckers will be hardest hit. They now carry more than half of Arizona's petroleum traffic, and there's no doubt the pipeline will cut into their hauls, maybe even forcing some out of business.

Many independent distributors see a chance to cut their operating costs. A group in Arizona has already formed a statewide distributors organization which plans to lease or build a bulk terminal at Phoenix. By using their own bulk terminal, they hope to be able to ship large quantities and save about ½¢ a gal. in terminal costs.

Independent refiners may continue to ship by truck, particularly in Southern California. That's because they will be unable to ship in large enough amounts to make the pipeline economically worthwhile to them. This means they are apt to face growing competition in areas near the pipeline route.

Major refiners are expected to be the big users. The El Paso pump station is available to the refineries of The Texas Co. and Standard of California, both of which are expected to tie directly into the line.

On the western end, the Watson pump station is close to Richfield, Tex., and Shell refineries, and to Tide Water Associated's tank farm as well. Union Oil and General Petroleum pipelines are accessible to the station, and California Standard's closest connection is only four or five miles.

The major factor in making the pipeline attractive to shippers, of course, is the prospect of a substantial saving in transportation costs.

Southern Pacific has figured on a tariff of 60¢ a bbl. to Phoenix, from either Watson or El Paso. This compares with a current tank-car rate of $1.3419 a bbl., and a common-carrier truck transport rate of $1.399. The SP tariff still has to be approved by the Interstate Commerce Commission, so it's still subject to change.

Oil companies guard carefully the cost figures for their own truck fleets. But even though these costs may be lower than other transportation, at least one company in the Southwest says with conviction that investment in trucks for long hauls is not as attractive as investment in marketing, refining, and production facilities.

The possibility of saving money on pipeline transportation doesn't mean that all shippers—or even a majority of them—will switch immediately to SP's line.

One question certain to be raised in their calculations is what will become of their own storage facilities. The companies' present bulk stations are geared to tank-car and tank-truck deliveries. Hence, some of these stations will be inadequate to cope with larger volume pipeline shipments. Also, direct deliveries from pipeline terminals will bypass some of these stations.

Some companies, too, have a considerable investment in long-haul tank trucks. Switching to pipeline transportation would make it necessary to do something with these trucks to recover that investment—or to write it off.

There still will be a considerable need for tank trucks to haul products which won't be moved in the pipeline, and to serve areas the pipeline won't reach.

SP's proposed minimum tender requirements (25,000 bbl. at Watson, 15,000 bbl. at El Paso) will mean the line will carry only gasoline and military jet fuel.

The reason for that is clear: In Arizona, the line will feed an area which last year consumed 23,000 b/d of gasoline. Yet the whole state used only 43,000 bbl. of fuel oil in the entire year, which makes pipeline use for that product totally impractical.

In Southern California, SP's route will reach another area of heavy gasoline consumption—40,000 b/d to 50,000 b/d. At least until the line reaches its ultimate 40,000 b/d capacity, there will still be a lot of products to be moved by other transportation.

The possible conversion of the line to crude oil transportation in wartime may cause some prospective shippers to shy away from using it, fearing they might be left out on a limb.

This possibility has been mentioned

from time to time in congressional committee hearings on West Coast wartime crude oil requirements and supply. And Standard of California brought it up in its announcement of plans for expansion of its own pipeline facilities from West Texas to El Paso. Company officials said that, in an emergency, their line could be connected with the SP line to channel crude oil from West Texas fields to the West Coast.

Southern Pacific is going ahead briskly with its construction, apparently feeling sure the line will be a paying proposition.

Contract for construction of the El Paso pumping station was let recently to Robert M. McKee, Inc., of El Paso, and work has already begun on it. The station will pump from El Paso to Phoenix via Lordsburg and Tucson.

Contract for the Watson pump station, near Wilmington, Calif., has been let to J. A. McNeil Construction Co., of Alhambra, Calif., and construction will start right away. Bids are now being taken on a third pump station, at Colton, Calif.

Work is also progressing rapidly on the pipeline itself. Morrison-Knudsen Co., of Los Angeles, already has more than 120 mi. of pipe in the ground on the 158-mi. section between El Paso and Lordsburg. R. H. Fulton Co., of Lubbock, Tex., has started work on 145 mi. of line from Lordsburg to Tucson. And Coynes Construction Corp., of San Pablo, Calif., is working on the section from Yuma to Colton.

What's New / IN TRANSPORTATION

Tank truckers now have blanket Interstate Commerce Commission authority to haul "liquid chemicals." But products not meeting ICC's definition of a liquid chemical will still require separate authorization.

As a rule of thumb, ICC officials say, a carrier can presume a product to be a "liquid chemical" if it is carried from one manufacturing plant to another. But where a product is moved to another plant for packaging only, says ICC, it is not a chemical, but an end product, which can't be hauled under authority for liquid chemicals. The new rules went into effect Aug. 1.

•

Gulf Interstate Gas Co. will install a control system which will make its Stanton (Ky.) gas compressor station the first such unit to be completely controlled from a remote location.

The Union Switch & Signal Division of Westinghouse Air Brake Co. will build the centralized transport-control system. It will permit remote control of the Stanton station from Clementsville, Ky., about 90 mi. away.

•

The tanker trade-in-and-build program will be killed if Congress does not authorize lower speeds, Rear Adm. Walter Ford charges. Ford, Maritime Administration's Deputy Chief, says Maritime will ask the House Merchant Marine committee to lower speed requirements to 17 knots. Ford says he understands hearings before the committee will begin in a few weeks.

•

More than 500 tons of 30-in. gas pipe arrived at Corpus Christi, Tex., this week for use in Tennessee Gas Transmission Co.'s 530-mi. line from Agua Dulce, Tex., to Kinder, La. Much of the line will be laid through water parallel to coast highway 35. This will permit easier connections with offshore rigs. Actual laying of the line will begin in about three weeks.

•

Barge petroleum shipments in May gained 64-million gal. over May, 1954, on Gulf and South Atlantic Intracoastal waterways and on the Mississippi river system, according to American Waterways Operators, Inc.

AWO reports May trade this year was 291,199,272 gal. Shipments for the first five months of 1955 exceeded 1.4-billion gal.

•

The Federal Power Commission has authorized Cities Service Gas Co. to contract 238 mi. of natural gas pipeline and a new 2,700-hp. compressor station in Kansas and Oklahoma.

Construction would cost $8,422,000 and boost capacity of the company's system by about 50-million cu. ft. daily this year and by 100-million cu. ft. daily thereafter.

CORROSION PREVENTION IN WELLS WITH

Trade Mark

RODINE

Reg. U.S. Pat. Off.

310

A NEW CORROSION INHIBITOR FOR

SWEET OIL WELLS
CONDENSATE WELLS
SECONDARY RECOVERY OPERATIONS

- Economical.
- Effective at low concentrations in brine or fresh water where organic acids and carbon dioxide are the corrodents.
- Polar and strongly adsorbed; unusual persistence of inhibition.
- Disperses in water or brine.
- Exceptional efficiency at high temperatures.
- Effective in the presence of oxygen.

Laboratory Information Release and Laboratory samples of "Rodine" No. 310 will be sent on request.

AMERICAN CHEMICAL PAINT CO.
AMBLER, PA.
Detroit, Mich. Niles, Calif. Windsor, Ont.

NEW PLATFORMER at Nippon Petroleum's Kudamitsu plant plays a part as . . .

Japanese Eye Export Markets

Japanese refined products may start flowing to almost every nation in southeast Asia in the not too distant future—if refiners' ambitious plans for expansion go through.

Right now domestic demand for oil products is strong, and Japanese refineries aren't turning out enough to fill requirements of gasoline, heavy fuel oils, and lube oils. Refining capacity this year amounts to 225,507 b/d, but output, which hit a postwar high of 139,800 b/d in May, still has to be supplemented by substantial product imports. Consumption this year will amount to about 65½-million bbl., of which 15½-million bbl will be imported.

The Japanese government intends to diminish imports of refined products gradually in order not to injure the big oil trading companies, and by 1960 only small quantities of high octane gasoline will be imported.

There's developing opposition in the government to further expansion of the refining industry—largely sparked by opposition of the country's coal interests to the increasing use of fuel oils.

The Japanese refiners, however, are pushing ahead with expansion plans. What they're aiming at is the southeast Asia export market—in addition to filling domestic requirements.

They'll need a lot more refining capacity, the refiners say, before they can fill domestic needs and start exporting, too. Capacity has been increased more than 300% since before the war to its present 225,507 b/d. Investment for projects completed or planned since 1951 is estimated at well over $107-million, and some authorities figure that Japan's capacity would be boosted to 327,000 b/d if the projects still in the planning stage go through.

But the government, worried over their enthusiasm, feels that new refining facilities would only add to excess, idle refining capacity. There isn't enough crude available now for existing facilities, and the government says it does not feel justified at this time in allocating any additional foreign exchange for the purchase of foreign crude. (Domestic crude production is very small, accounting for only 4.1% of refinery throughout last year.)

Japan is allocating some $130-million for foreign oil purchases this year, about the same as last. A slightly greater share of it than in 1954 is going for crude—about 51-million bbl. (140,000 b/d) will be brought in this year compared with 46.6-million bbl. (127,600 b/d) last year. So there will have to be a slight drop in product imports, which totaled 18.6-million bbl. (51,000 b/d) last year.

Main source of crude last year was the Middle East (77.3%), with Southeast Asia in second place. The Middle East and North America were the main sources of products.

Despite its fear of over-investment in the refining industry, the government is expected to approve some large-scale expansions within the next few months.

Some involve production of petrochemicals, of which there is relatively little in Japan today. Others may be permitted for companies that plan to export most of the added output to Southeast Asian countries.

Such exports, government officials feel, even though they are products made from imported crude, are likely to bring in more foreign exchange than is needed to pay for that crude.

Another possible form of "exports" is sale of products to the U.S. forces in Japan, for dollars. Nippon Petroleum Refining Co. (50% owned by Caltex) is said to be planning to take such a move soon.

The Japanese government is expected to decide within six months on a long-range oil policy. This will help it resolve such basic dilemmas as: (1) controlling the enthusiasm of expansion-minded refinery companies, while permitting construction of new facilities; and (2) considering the export of petroleum products when there aren't enough to satisfy domestic demand.

Here are a few of the expansion plans of individual companies:

Maruzen Oil Co., wholly Japanese-owned, plans a new petrochemical plant to turn out propane, isopropyl alcohol, and methyl-ethyl alcohol. Expansion of its refining facilities since the war has already boosted Maruzen's refinery capacity, at Shimotsu and Matsuyama, from 2,205 b/d to 36,100 b/d.

Nippon Oil Co., 100% Japanese-owned, plans a new petrochemical

plant to make acetone, isopropyl alcohol, and methyl isobutyl ketone. Some of its raw materials will come from its own refineries; it will buy the rest from Nippon Petroleum Refining Co., 50-50 owned by Caltex and Japanese interests.

Mitsubishi Oil Co., 50-50 owned by Tide Water Associated and Japanese interests, plans a petrochemical plant to make aromatics, principally benzene, toluene, and xylenes. It recently installed a platformer unit, high-grade lube-oil manufacturing facilities, and an atmospheric extraction unit at its Kawasaki refinery. Capacity there has been boosted from 7,056 b/d before the war to 26,730 b/d.

Koa Oil Co., Ltd., 50-50 owned by Caltex and Japanese interests, will participate in a joint enterprise with the Mitsui Companies for a petrochemical plant to produce polyethylene, ethylene glycol, acetone, and phenol. Koa's Marifu refinery is winding up an expansion program that includes new topping and thermal cracking facilities. Its capacity of 12,000 b/d will be boosted to 15,000 b/d by the end of this year.

Showa Oil Co., 50-50 owned by Anglo-Saxon Petroleum Co. (Royal Dutch-Shell) and Japanese interests, may also participate in a refinery venture with Mitsubishi Chemical Co., a Shell affiliate. Both want their facilities located at Tokuyama, a former naval fuel depot. The plant would have the capacity for processing 30,000 b/d.

Idemitsu Kosan Co., a trading firm, plans a 20,000 b/d refinery through a tie-in with National Iranian Oil Co. It's negotiating with the latter for the purchase of 7-million bbl. of Iranian crude annually for a new refinery that it hopes to start building soon at Tokuyama.

Toa Nenryo Kogyo Co., 55%-owned affiliate of Standard-Vacuum, is planning to add a 10,000 b/d catalytic cracking unit to its Wakayama refinery. Toa's present capacity totals 47,500 b/d. The company buys oil from Stanvac, then sells its refined products back to Stanvac for sale in Japan. Stanvac recently asked the government's permission to sell Toa's products in southeast Asia, but later withdrew with the understanding it would resubmit its plan when the government's long-range plans are completed.

Daikyo Oil Co. plans to expand its 24,287 b/d Yokkaichi refinery by addition of a 3,500 b/d catalytic cracker and a 218 b/d catalytic polymerization unit.

Geologists are hard at work all over Cuba as . . .

Cuban Oil Interests Grow

Activity in Cuban oil exploration, which has been expanding for the past year, has taken another forward spurt. Latest move is the formation last week of Siboney Development & Exploration Co., set up jointly by Crescent Corp. and Sterling Oil Co. to explore for oil and gas on their holdings in Cuba.

Crescent and Sterling will each own 25½% of Siboney's common stock. Three investment houses will hold 9%. The remaining 40%, consisting of 2-million common shares, will be offered to the public at $1 a share.

Siboney will use proceeds from the stock sale to finance an exploration program on half of a 5.2-million acre concession held by Caribbean Petroleum Associates, Inc., which represents a group of eight Cuban companies. Siboney will drill 36,000 ft. of hole, evenly divided among the four blocks that make up the 2.6-million acres, in return for which it gets an undivided one-half interest in this part of the concession. An option running to Jan. 27, 1957, will permit the company to acquire similar rights on the remaining 2.6-million acres.

Drilling is expected to start early this fall, and the first site has already been selected. W. H. Garbade, president of Crescent, says additional wells will be drilled as soon as exploration concessions are finalized on the areas selected for drilling.

Siboney's is only the latest move in a tide of interest in oil prospecting that has swept Cuba in the last 14 months. Already concessions have been granted or requested for all of Cuba's 44,000 sq. mi., as well as for about 15,000 sq. mi. of offshore areas. Both Cuban and American groups have been rushing to get into the boom.

So far, Cuba's oil potential is far from clearly defined, in spite of considerable exploration done in the past by such major companies as Gulf Oil Corp., Atlantic Refining Co., Shell Oil Co. and Standard Oil Co. (N. J.).

The feverish rush to explore for Cuba's oil really started in May, 1954. Until then, only three small fields had been found in Cuba, although almost 2,000 wells had been drilled. But then Kerr-McGee, drilling for a Cuban group that held the concession in the Jatibonico field of Camaguey province, hit with its Echeverria 1. That touched off the excitement. Now the field is producing more than 1,000 b/d from 16 wells. Nine of these wells are operated by Kerr-McGee, a company which now has a 25% interest in the field.

Some 30 rigs are in action in the Caribbean republic at present. Concession commitments this year reportedly call for drilling of perhaps 20 wells, but current activity indicates

the year's total will come to many times that number.

It's still possible to get in on Cuba's oil despite the fact that the field is getting pretty crowded. Some companies have been buying up concessions already granted, or getting farmouts from such groups as the Cuban Venezuelan Oil Voting Trust. This is a management group for 24 companies that control concessions on some 17-million acres. Late last year Cuban Venezuelan made a deal with Trans-Cuba Oil Co. under which Trans-Cuba acquired 50% interest in Cuban Venezuelan's holdings, in return for a $3-million expenditure on exploration. Currently Trans-Cuba is drilling the third of 10 planned wells, so far without any significant production.

Cuban-American Drilling & Exploration Co., Texas independent, also has a farmout from Cuban Venezuelan of 750,000 acres in Las Villas, Camaguey, and Oriente provinces. It has already drilled a well to 5,280 ft. near Arroyo Blanco, about 8 mi. northeast of the Jatibonico field, with some oil shows reported. The company has an offshore farmout as well, covering 1½-million acres, on which it holds a 9-month drilling option. It's now carrying on extensive seismic work on the concession.

Currently Stanolind Oil & Gas Co. reportedly is negotiating for an 8.6-million acre concession on the south coast in Camaguey and Las Villas, from Cuban Venezuelan and Trans-Cuba. The contract has not been signed, but it's said to involve a 50-50 split with the Cuban companies on any production and profits, as well as a split of operating expenses after five years, if oil is discovered. The deal would call for seismic, geophysical, and exploratory work and drilling of at least 40,000 ft. of hole annually for five years. Areas are not defined, but they're generally the same in which Siboney will be operating, along with Kerr-McGee, Cuban American, and several others.

Other companies, whose interest had lagged after considerable unproductive exploration in Cuba, have revived their programs since the Jatibonico discovery. Gulf's current program calls for core drilling in its 750,000-acre concessions in Las Villas, where it is planning a deep test. Atlantic had given up most of the concessions it held between 1930 and 1946, but kept a one-third interest in Compania Las Estrellas, of which Shell owns the rest. Now Atlantic is conducting geological and seismic surveys with Las Estrellas and is also reestablishing its acreage on the north coast. It's reportedly applying for further large concessions in Pinar del Rio. Shell is doing seismic work along the north coast. Jersey Standard has reopened its exploration office.

The Cuban government, swamped by hundreds of applications, is smiling broadly on the whole business. It's eager to find oil to back up its economy, now heavily dependent on sugar. And it would like to cut down its $30-million annual oil import bill.

Under the Cuban law, mineral rights belong to the government, which must approve all leases. Exploration concessions are for three-year terms, during which geological and geophysical work must be done. At the end of that time, a 30-year development concession may be applied for, renewable for another 10 years. The government will lend up to one-third of invested capital to operators for drilling. Such loans are repayable out of 20% of production when reached. Royalty on oil produced is 11%, of which 10% goes to the government, 1% to the owner of the surface rights. If the oil is refined in Cuba, the government royalty is only 9%.

New Italy Oil Law Closer

It looks as though Italy's center and left political groups may join forces in drafting a new compromise oil law to break a long-standing deadlock that has held up mainland oil development.

The two groups have been at work drafting their own versions of a law to submit to Parliament in place of the Malvestiti Bill, which has been stuck in committee since 1953. In his initial address to Parliament, Prime Minister Antonio Segni said no new oil concessions would be granted until the Malvestiti Bill had been amended and enacted. But this bill, which would give wide scope to private enterprise, has been caught in a political log-jam.

Segni wants to move quickly to develop oil resources and wants a free flow of productive capital from abroad, particularly from the U.S. The center and left groups, however, are not satisfied with Segni's suggested amendments to the Malvestiti Bill—which would simply reduce the administration's discretionary powers and avoid concentration of operating concessions in a few companies.

The two drafts being worked up look generally about as expected: The left group demands nationalization of all oil resources; the center group favors a combination of public and private development. But both groups agree on several points: a general commissariat for mineral oils; reorganization of Ente Nazionale Idrocarburi (ENI), the government monopoly in the Po Valley; and strict control over its operations. Both are against ENI negotiations now under way for formation of joint companies in participation with foreign firms.

The center group's draft also includes the following provisions: preservation of the ENI monopoly in the Po Valley; exploration by private enterprise in other parts of Italy; no ENI holdings in private companies holding permits or grants; maximum grants of 300,000 hectares to any one applicant; a 20-year exploitation concession covering one-fourth of an exploration area after oil is found. The 75% of the exploration areas that is surrendered would revert to the State, which would grant one-tenth to ENI and offer the balance to private companies at public tender. Royalties would be fixed at 12½% of the gross product. At the end of the 20-year period, the fields would become the property of ENI.

New concessions on the mainland of Italy have not been granted for some time now to foreign companies, though many have been interested in developing Italy's oil resources. The law now in force set up ENI as a monopoly in the Po Valley, where it has produced as much as 3-billion cu. ft. of methane annually, but has failed to find commercial quantities of oil.

The present controversy centers on areas other than ENI's Po Valley. Geologists report the possibility of important oil beds all along the Adriatic coast from Venice to Bari. High quality oil was found by Gulf in two wells drilled in the Abruzzi region, but development is at a standstill pending Parliament action on the new oil law.

American and other foreign companies have been active in Sicily, where a regional law encourages foreign participation. Gulf Oil Co., whose seven wells in the island province are producing something like 4,000 b/d, plans to complete 22 new wells at the Ragusa field by the end of next year. Numerous applications for prospecting licenses have been filed by U.S. independents as well as by major companies from the U.S. and other foreign countries (PW—Jul.22'55, p30).

What's New / ABROAD

'Fair' Rules Promised

GUATEMALA—"Reasonable and fair regulations" for Guatemala's new oil law are promised by President Castillo Armas. The regulations implementing the new law must be issued by Oct 9, and are being discussed now. (PW—Jul.8'55,p42).

Armas is described as a "dedicated man" who "naturally wants fair returns to Guatemala," but who also insists on a fair return to oil companies. Elmer Batzell, of the Washington firm of Meyers & Batzell, who served as consultant to the Guatemalan government in drafting the new oil law, said this week in Washington that all applications for exploration and development rights filed before Nov. 9 will be treated as if filed simultaneously. In cases of overlapping applications, the new law provides for competitive bidding.

•

EGYPT—Several new oil prospecting licenses will be granted to international companies as soon as a new mines and quarries law is issued, according to Dr. Mahmoud Abu Zeid, director of the fuel department of the Ministry of Commerce & Industry. A draft law revising the 1953 version of the "mines and quarries" law is being studied by the National Production Council before it is submitted to the Council of Ministers in the hope that it will receive approval and ratification.

Requests for further oil prospecting licenses from several companies already prospecting in Egypt have been pending for some time. The new draft reportedly provides "several exemptions and concessions aimed at encouraging investors to prospect for oil and other minerals in the Egyptian deserts."

•

LEBANON—After long debate, Lebanon's House of Deputies has approved a draft law granting a concession to the Compagnie Libanaise des Petroles for oil exploration and exploitation in Lebanon.

A local firm, Compagnie Libanaise has drilled a well at Yohmor in the Southern Bakaa plain in association with Pacific Western Oil Co. The American company had acquired an undivided one-half interest in five exploration permits covering 700,000 acres in Lebanon held by the Lebanese firm.

Compagnie Libanaise des Petroles is not to be confused with Lebanon Petroleum Co., an Iraq Petroleum Co. affiliate which also carried on exploratory drilling in Lebanon a few years ago.

•

COSTA RICA—A refinery proposal is being studied by the Consejo de Gobierno, an administration advisory agency, government sources have disclosed. No details are being released, but local reports say a $3-million investment is involved. Presumably, the proposed refinery—if it is approved and set up—would import crude oil.

Union Oil Co. of California, whose Costa Rican subsidiary Compania Petrolera, S. A., is now preparing to drill a third wildcat (PW—Jul.15'55,p11), has an option to establish a refinery if it finds commercial quantities of oil. Under the company's contract, the government may grant the refinery rights to other interests if Union Oil Co. decides that it does not want to set up a plant.

Government sources say, however, that the agreement with Union refers only to oil discovered by the company in its current exploration and cannot be considered applicable to the independent establishment of a refinery in Costa Rica that will use imported crude oil.

•

IRAN—Crude output rose in June to 357,250 b/d from 282,581 b/d in May, bringing the average for first six months to 286,644 b/d. Refinery output at Abadan averaged 148,190 b/d in June, compared with 148,119 b/d in May. Total refined in the first half year averaged 149,198 b/d.

•

KUWAIT—Crude oil flow fell from May record of 1,207,917 b/d to 1,079,236 b/d in June. Output in June, 1954, averaged 912,180 b/d.

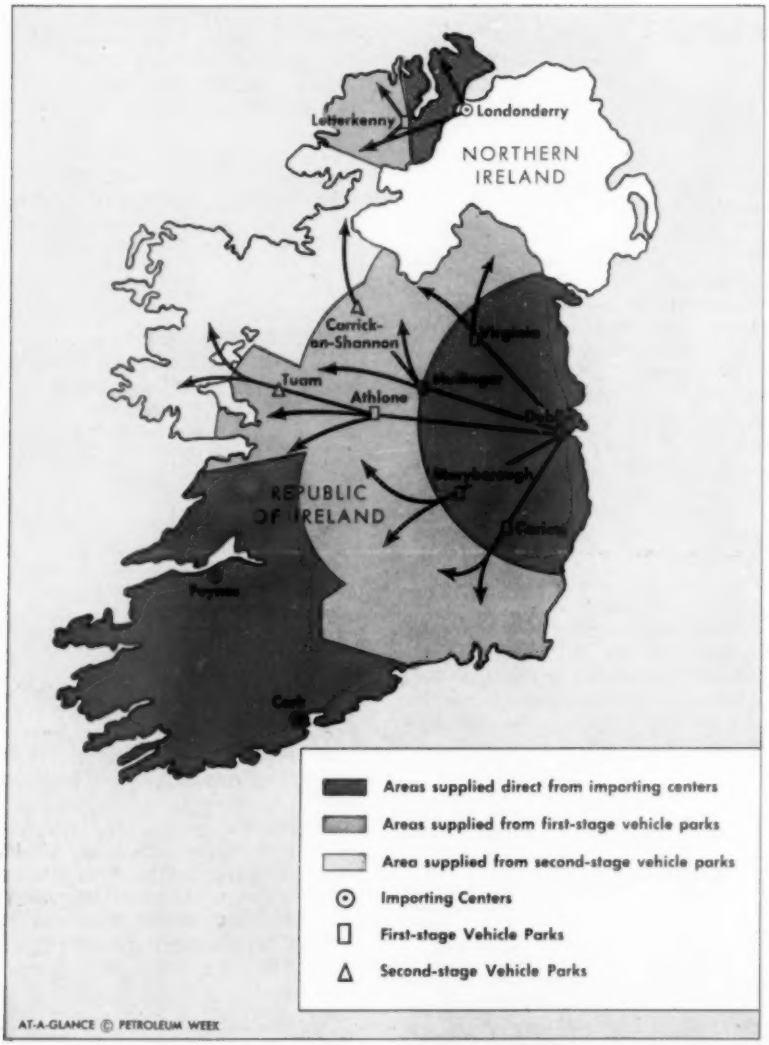
•

QATAR—Crude oil flow in June rose slightly to 113,961 b/d, compared with 112,833 b/d in May, bringing the figure for the half-year average to 110,366 b/d.

Stanvac Unit Gets a Face Lifting

INDONESIA—A $20-million modernization program is getting under way on Standard-Vacuum Oil Co.'s Sungei Gerong refinery (above) near Palembang, on the island for Sumatra. Stanvac's improvements for its oldest and largest refinery, to be completed in 2½ years, include installation of a 10,000 b/d recycle fluid catalytic cracking unit and a 1,100 b/d nonselective catalytic polymerization plant. Additional power facilities are already being installed, and bids are being received for a new sulfuric acid plant.

The refinery improvement is part of Stanvac's $80-million Indonesian investment program, to be completed in 1958. Stanvac will also build a 90-mi. pipeline to carry 20,000 b/d of crude oil from Lirik field. Coastal craft will carry the crude from the terminal to Sungei Gerong.



Irish Leap-Frog Solves a Problem

American suppliers faced with the problem of sparse trade spread over a wide area may be able to take a cue from Irish Shell Ltd. This firm has cut distribution costs in the Irish Republic 20% by a new and ingenious "leap frog" tractor-trailer delivery system.

Irish Shell officials say that in areas where trade is heavy, the economical way is to provide a bulk storage depot and to feed it in large drops, either by barge, rail, or tank wagon.

But where trade is light but evenly spread, as in their case, the throughput of a depot could be too small to justify the initial capital outlay. In addition, the end point delivery costs would be heavy, due to the high mileage that the delivery vehicles would still have to cover.

Under the "leap frog" plan, trailers are loaded at a central point and hauled to "vehicle parks"—relay stations—spaced out in arcs 40 mi. to 50 mi. away. From here other tractor units take over and deliver locally or go on to "second-stage" parks farther out. The first tractor, meanwhile, returns to the central point for reloading.

The area within the first arc is serviced by conventional tank-wagon delivery out of the central point. The area between the first and second arcs is served by the first-stage vehicle parks; the area beyond the second arc is served by the second-stage parks.

Here's how it works in Ireland:

- **There are four main importing centers**—Dublin, Cork, Foynes, and Londonderry.
- **The area immediately around these centers (red areas on map) is served by conventional tank-wagon delivery** directly from the importing cities.
- **The rest of the country (pink areas) is supplied by leap-frog.** Most of the system centers on Dublin, which serves five first-stage and two second-stage vehicle parks. A small area on the North Coast is served out of a conventional depot at Letterkenny.

Historically, the bulk of the oil business in Ireland was concentrated within the four major seaports, which are supplied by coastal tanker. The remainder of the market was small and was supplied by rail out of Dublin, Cork, and Foynes through small depots along the rail lines. But a combination of increasing rail rates, growing inland markets, and improved roads forced a switch to highway distribution.

The problem was, how to set it up. Cork and Foynes are so located that, between them, they can service the southwest portion of the Irish Republic by conventional tank-wagon delivery. But the area serviced by Dublin, and, to a lesser extent, Londonderry, is much larger, to the point where direct tank-wagon delivery wouldn't have been economical. It was to solve this problem that Irish Shell came up with the novel idea of vehicle parks.

Success of the "leap frog" system hinges largely on traffic managers at the vehicle parks. It's up to them to coordinate supply with demand so that no scarcities, or pileups, occur in the relay stations.

The traffic controllers send their orders to Dublin, where trailers are loaded accordingly. On arrival at the vehicle park, the driver disconnects the full trailer and connects up an empty trailer which has been used for deliveries to customers the previous day. He then returns to Dublin with the empty trailer.

Based at the vehicle park are a number of other tractors, which are used solely for delivery purposes. These are connected with the loaded trailers in the park to make deliveries to customers in adjacent areas. Other units carry some trailers on to the

second-stage parks, where a similar procedure follows.

In addition to eliminating the cost of new depots, use of tank trailers as "storage on wheels" provides flexibility in distribution and saves time.

The trailers make it possible for a single tractor unit to be used for transporting gasoline, gas oil, or kerosine. This means that the system requires fewer tractors than trailers, and that the tractors are fully utilized—both important because the tractors cost more.

The system also saves time—and money—because it is no longer necessary to discharge cargoes into underground storage, with the subsequent necessity for reloading.

Whether the system can be applied in the U.S. may depend largely on local economic conditions.

Mileages involved may be considerably greater in the U.S., thus requiring a significantly larger number of vehicles than would be the case with a depot system. Hence much of the economic advantage might be lost.

And volumes involved in the U.S. would be very much greater. In 1954 the Irish Republic used 856,000 long tons of petroleum products altogether, of which 260,000 tons were gasoline and 410,000 tons were fuel oil. The gasoline served a total of about 120,000 private cars and buses, about equal to the total number in Vermont or Delaware.

What's New / IN MARKETING

McKale's to Lease Chain

McKale's, Inc., wants to quit operating its 43 service stations on the West Coast; plans to lease them to Union Oil Co. of California. Union has supplied McKale's since founder Earl McKale opened the first service station more than 30 years ago.

The company has called a special stockholders' meeting for Aug. 22 to consider the move.

W. D. Groves, vice-president, says the company has never passed a dividend, but that its last three semi-annual dividends had been cut from the usual 25¢ to 15¢.

He would not explain the move further, beyond stating it was due to "economic conditions." He emphasized that McKale's, which has an annual gross of about $7-million, is "in a very sound position" financially.

•

Steel Oil Can Has Rival

Is aluminum more economical than steel as a motor oil container? Esso Standard Oil Co. is trying to find out.

The company has been testing several thousand one-quart aluminum cans at some 20 service stations in Virginia. Details won't be released for a week or so, but at least this much is known:

Esso is trying to find out whether or not the initial high unit cost of aluminum cans will be overcome by savings in freight costs. A case of oil in aluminum cans weighs about 6 lb. less than a similar case packed in standard tinplate or blackplate.

Other asserted advantages under survey are aluminum's esthetic qualities (it's said to bear lithography better than steel) and its salvage prospects. In some dense areas, service station operators pay as much as 75¢ a bbl. to have their "eyesore" empties hauled away. With aluminum cans, the individual dealers or the company itself could set up a scrap recovery program. Esso's report is expected this month.

•

Shell Oil Co. is getting set for a potential market in jet-powered private planes. Shell says it will make fuel for such planes available to several hundred Shell airport dealers throughout the country as soon as a demand is evidenced. Special oil for the planes also will be made available.

Shell's declaration last week was made in connection with the current demonstrations in this country of a 410-mph. French jet plane for executive use.

•

Pennsylvania's Wyoming Valley is embroiled in another round of gasoline price cutting. Dealers from Wilkes Barre to Scranton, at opposite ends of the valley, have dropped prices 2¢ to 3¢ a gal. in the past week. Tank wagon prices also are down 2¢.

Most dealers in the valley, scene of recurring gasoline price wars, now post 16.9¢ to 17.9¢ a gal. (ex 7¢ taxes) for regular grade. "Normal" is 19.9¢. At least two major suppliers have dropped tank wagon prices to 13.4¢ for regular.

Reports vary as to what's behind the latest wave of price cutting. But most blame the major brand-private brand price differential. Prior to the latest tank wagon price drop, several Scranton private branders were 2¢ below major brands.

"VEHICLE PARKS" REPLACE BULK DEPOTS in Irish Shell's "leap frog" delivery system. Tractor units haul loaded trailers to the park and drop them there; park-based tractors pick them up when they're needed to make local deliveries. The first units, in the meantime, have returned to Dublin with empty trailers for reloading.

The Market Place

AROUND THE WORLD

Current key crude and refined oil prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service, a McGraw-Hill Publication.

All Prices as of August 1

*Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal., except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- **Gasoline, 97 oct prem** **13-13.5**
- **Gasoline, 90 oct reg** **11-11.5**
- Kerosine 8.75-9.75
- **Heating oil, No. 2** **8.5-9.25**
- **Gas oil, 48-52 d.i.** **8.625-9.125**
- Fuel oil, bunker "C" $2.10-2.15

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 16.75
- Gasoline, 93 oct research prem 11.5
- Gasoline, 87 oct research reg 10.5
- Gasoline, 79 oct research 9.75
- Gasoline, 70-72 oct motor method 9.5
- Kerosine 8.75
- **Heating oil, No. 2** **8.5**
- **Gas oil, 48-52 d.i.** **8.625**
- Fuel oil, bunker "C" $2.10

New York Harbor, barges
- Gasoline, 89 oct reg 11.75
- Kerosine 10.55
- Heating oil, No. 2 ..... 9.8
- Fuel oil, No. 6 ..... $2.50

Okla.-Group 3, northern shpt, bulk
- **Gasoline, 86 oct reg** **11-11.5**
- Kerosine 9.375-9.625
- Heating oil, No. 2 ..... 8.125-8.65
- Fuel oil, No. 6 ..... $1.75-1.90

Chicago, bulk
- Gasoline, 86 oct reg 12
- Heating oil, No. 2 ..... 9.5-10.3
- Fuel oil, No. 6, high sulfur 7.15-7.35

Los Angeles, rack
- Gasoline, 84 oct reg 11.75-12.1
- Stove dist., PS 100 ..... 9.25-10
- Diesel fuel, PS 200 ..... 8.75-9.25
- Light fuel, PS 300 ..... $2.05-2.10
- Heavy fuel, PS 400 ..... $1.70-1.85

Natural Gasoline, Grade 26-70
- FOB Group 3 5
- FOB Breckenridge, Tex 4.5

Penna. Lubes
- Bright stock, 25 p. t. 17.5
- 200 vis. neutral, 25 p.t. 18

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 vi 20-21
- Neutral, solvent, 200-210 vis 15.75-16.75

Gulf Coast Lubes
- **Bright stock, solvent 95 v.i.** **19-21**
- **Neutral, solvent, 200 vis** **15.75-17.5**

**Sterling*

Eastern Hemisphere

Singapore, cargoes
- Avgas, Grade 100/130 ..... 18.125
- Gasoline, 79 oct research 10.25
- Gasoline, 70-72 oct motor method 10.00
- Kerosine 9.375
- Gas oil, 48 d.i. minimum 8.875
- Fuel oil, light $3.10

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 grav $2.82
- North Dakota, 36.0-36.9 grav 2.82
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 grav 2.95
  - Gulf Coast, upper & lower, 26.0-26.9 grav 2.82
  - West Texas sweet, 36.0-36.9 ..... 2.82
  - West Texas-New Mexico intermediate, 36.0-36.9 ..... 2.75
  - West Texas–New Mexico sour, 32.0-32.9 ..... 2.61
  - East Texas, flat price 2.90
  - Mirando, 28.0-28.9 grav 2.96
- Illinois Basin, flat price 2.90
- Penna. Grade, Bradford dist., flat price 3.60
- California, Signal Hill, 21.0-21.9 grav ..... 2.30†
- North Louisiana-Arkansas, 36.0-36.9 grav 2.82
- Wyoming sweet, 36.0-36.9 ..... 2.82
- Wyoming sour, 32.0-32.9 ..... 2.48

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) D-2, D-3, L.C. 2.54
- Leduc-Woodbend (Alta.) D-2, D-3 ..... 2.60
- Redwater (Alta.) D-3 ..... 2.49
- Daly-Mississippian (Man.) 2.34
- Smiley-Viking (Sask.) 2.24

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido 3.40
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.04
- Oficina, 32.0-32.9, Puerto la Cruz 2.82
- Tia Juana Medium, 26.5-26.9, Amuay 2.30*
- Bachaquero, 16.5-16.9, Amuay, Las Piedras 1.80**
- West Tarra, 37.0-37.9, Cardon 2.99
- Lagunillas Heavy, Amuay, Cardon, Las Piedras, flat price 1.85

Differential per ½ deg. grav.: (*) 2.5¢ bbl. (**) 3.5¢ bbl.
†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabian, 36.0-36.9, Ras Tanura 1.97
- Basrah, 36.0-36.9, Fao 1.92
- Iranian, 34.0-34.9, Bandar Mashur 1.91
- Iranian, 34.0-34.9, Abadan 1.86
- Iraq, 36.0-36.9, Fao 1.92
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.72
- Qatar, 39.0-39.9, Umm Said 2.06

Middle East, E. Mediterranean
- Arabian, 36.0-36.9, Sidon 2.39
- Iraq, 36.0-36.9, Tripoli, Banias 2.39

Far East (Cargoes, FOB Lutong, Sarawak)
- Seria Light, 37-38 grav 2.60

KEY TANKER RATES

(Last paid, per long ton, single voyage)
- **U. S. Gulf-New York, clean ... (USMC –3¾%) $2.74**
- U. S. Gulf-New York, dirty ... (USMC –25%) $2.14
- **NWI-USNH, dirty ... (USMC –15%) $2.30**
- **NWI-UK/Continent, dirty ... (Scale, flat) 32/6***
- Persian Gulf-UK/Cont., dirty ... (Scale, flat) 54/1*
- Persian Gulf-USNH, dirty ... (USMC –55%) $5.72

**Sterling*

The Market Trend

In The Midwest—A Feast

The industry is riding high in the Midwest this summer. And little wonder. The increase there in demand for gasoline—its biggest money maker—is outpacing the national average by around 2%.

Group 3 prices for both premium-grade and regular-grade gasolines moved up 0.25¢ a gal. last week. At 11¢ for regular, the Oklahoma refiner is now getting 0.5¢ a gal. more than he was at this time last year. And recent increases in tank wagon at Chicago and in the Rocky Mountain states (PW—Jul.29'55,p5) are but the forerunners of a general boost in the central states wholesale market, as refiners see it.

It has been nip and tuck for primary suppliers to keep up with the central states' mounting consumption. More than a few refiners have been on the buying side of the market to meet contractual commitments; their inquiries for up to 100,000 bbl. have not been uncommon. And the usually active resale agent will tell you that "loose supplies" just can't be found.

Refiners say they have had to up estimates of their needs to meet the rising demand several times since early spring. Sales figures from division offices to headquarters, in some instances, have been so high they have been sent back for verification.

You don't have to dig very deep to get to the bottom of the Midwest's gasoline supply pinch. District 2's production so far this year is up only about 2% from 1954 output. And demand has jumped close to 8%.

Distillates—Another Story:

The picture is not all rosy for the Midwest trade, especially among the smaller refiners who find their distillate inventories rising too fast. They are faced with this dilemma:

Should they boost their crude runs now to meet still higher demand for gasoline at harvest time? If they do, some of them say it won't be long before they will have to shut down completely for lack of distillate storage space. Some are considering cleaning crude oil tanks for heating oil.

On the other hand, there was confirmation this week of just how the Gulf Coast trade feels about the off-season position of heating oil. Mounting inventories to the contrary, it took sales of only three tanker loads of No. 2 oil to boost the low cargo price 0.25¢ a gal., to 8.5¢.

LP-Gas:

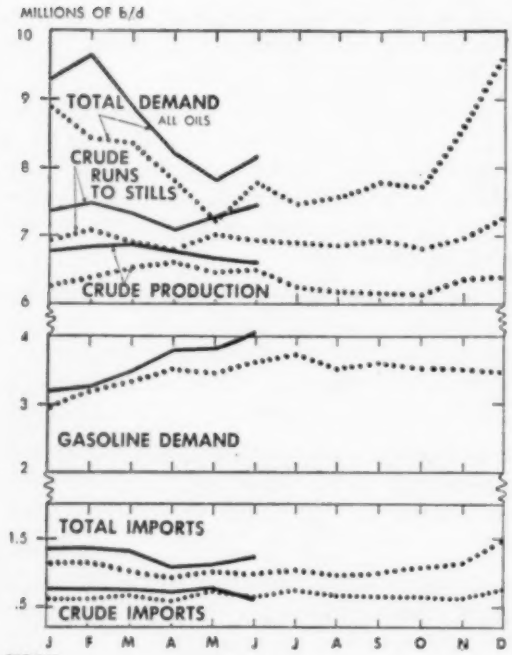
What's in store here is anybody's guess. Several principal manufacturers boosted their propane and butane postings 0.5¢ a gal. on Aug. 1. Other manufacturers, skeptical over price increases holding, held off meeting the boost.

Residual:

Recent price increases here have not brought out added offerings. And it's doubtful if they will. England's Central Electricity Authority's 10-million-ton annual requirements are only about one-half met in contracts signed recently with Esso, Shell Mex, and B.P. (PW—Jul.29'55, p35). Said one astute trader this week: "I know of no general offering of bunker 'C' fuel in cargo lots available in the Gulf or Caribbean areas between now and Dec. 31."

PETROLEUM WEEK'S

Fingertip Figures



TOTAL DEMAND

Latest 4-week average	8.070
Year ago	7.510

RUNS TO STILLS

Latest week	7.577
Previous week	7.620
Year ago	6.827

CRUDE PRODUCTION

Latest week	6.616
Previous week	6.650
Year ago	6.255

GASOLINE DEMAND

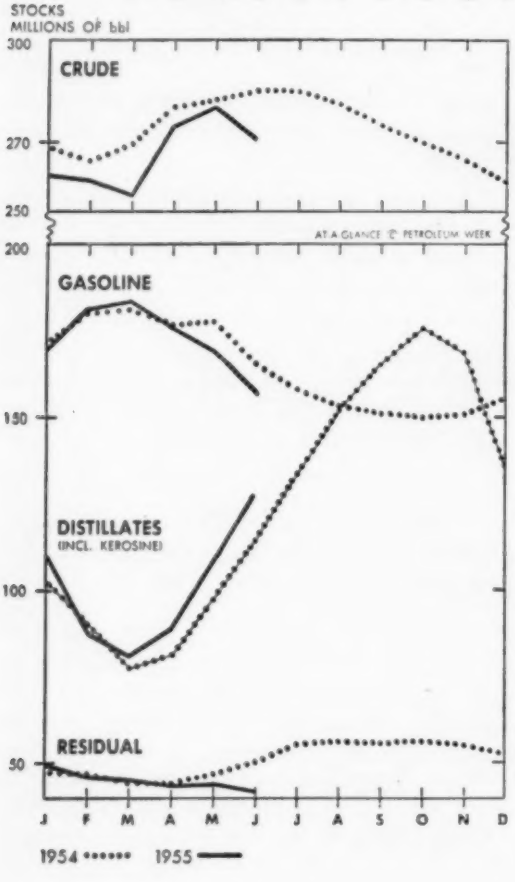
Latest 4-week average	3.939
Year ago	3.690

TOTAL IMPORTS

Latest week	1.187
Previous week	.993
Year ago	.866

CRUDE IMPORTS

Latest week	.864
Previous week	.734
Year ago	.614



CRUDE STOCKS

Week ending 7-23	270.0
Previous week	269.8
Year ago	279.7

GASOLINE

Latest week	157.0
Previous week	157.7
Year ago	158.4

DISTILLATES

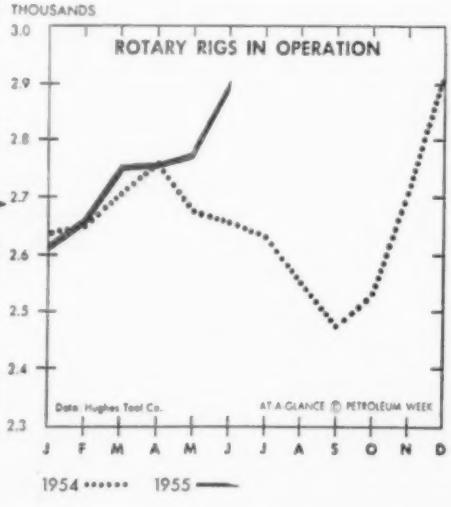
Latest week	147.9
Previous week	143.6
Year ago	131.8

ROTARY RIGS

Latest week	2.899
Previous week	2.910
Year ago	2.551

RESIDUAL

Latest week	45.5
Previous week	45.3
Year ago	64.7



TOTAL DEMAND for all oils in the four weeks ended July 29 was 7.5% ahead of the corresponding period of 1954, continuing the margin of gain over last year that has been prevalent most of this year. Gasoline demand for the latest four-week period was up 6.7%.

Runs to refineries are still considered high, averaging about 10% higher than a year earlier. While runs last week were slightly less than the week before, output of the four major refinery products increased. Though gasoline demand continues strong—and better than expected—increased refinery production of motor fuels is resulting in a smaller decline in gasoline inventories than the industry would like to see. In the past three weeks these stocks have declined by only about 2-million bbl. Normally, motor fuel stocks at this time of the year decline at a rate of nearly 2-million bbl. per week.

* * *

On the brighter side, data for the first 29 days of July indicates that total demand for the month was a little higher than expected, with a gain of 600,000 b/d, or 8%, over the previous July. Indicated July gasoline demand of about 3,950,000 b/d represents a gain of about 230,000 b/d, or more than 6%, over July of 1954.

You a target?

Let's face it . . . we're all targets!

If your plant is not ready with a disaster plan, better act now. There's not a single American plant that's out of range of an intercontinental bomber—and fires, floods, tornadoes or explosions can kill you just as dead as an atom bomb.

It costs next to nothing to take a few simple steps which may save hundreds of lives. Here they are. Check them off today.

☐ **Call your local** Civil Defense Director. He'll help you set up a plan for your offices and plant—a plan that's safer, because it's integrated with community Civil Defense action.

☐ **Check contents** and locations of first-aid kits. Be sure they're adequate and up to date. Here, again, your CD Director can help. He'll advise you on supplies needed for injuries due to blast, radiation, etc.

☐ **Encourage personnel** to attend Red Cross First-Aid Training Courses. They may save your life.

☐ **Encourage your staff** and your community to have their homes prepared. Run ads in your plant paper, in local newspapers, over TV and radio, on bulletin boards. Your CD Director can show you ads that you can sponsor locally. Set the standard of preparedness in your plant city. There's no better way of building prestige and good community relations—and no greater way of helping America.

Act now . . . check off these four simple points . . . lives are at stake . . . have you a right to delay?

CLASSIFIED

DISPLAYED RATE

The advertising rate is $12.60 per inch for Equipment and Business Opportunity advertising appearing on other than a contract basis. Contract rates quoted on request.
Employment opportunities—$14.80 per inch, subject to Agency Commission.

UNDISPLAYED RATE

$1.50 a line. Minimum 3 lines. To figure advance payment count 5 average words as a line. (See ¶ on Box Numbers.)
POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.
PROPOSALS, $1.50 cents a line an insertion.

INFORMATION

BOX NUMBERS count one additional line in undisplayed ads.
NEW ADVERTISEMENTS accepted 16 days prior to issue date.

CHIEF ACCOUNTANT FOR NEW OIL REFINERY UNDER CONSTRUCTION NEAR PONCE, PUERTO RICO

Immediate position for man with broad refinery accounting experience to act as Chief Accountant and Supervisor of all accounting and financial duties at refinery, and also to act as refinery Office Manager.

Reply Air Mail giving complete resume including present salary, availability, etc.

COMMONWEALTH OIL REFINING COMPANY, INC.
161 East 42nd Street
New York 17, New York

PERSONNEL MANAGERS

LOOKING FOR ENGINEERS . . . TECHNICIANS ?

Write for free copy of

"RESERVOIR OF ENGINEERS AND TECHNICAL MEN"

THE engineers and technicians you want to reach are gathered in convenient, compact groups—as this 12-page booklet points out.

It keys the job titles these men hold to the McGraw-Hill publications they read for on-the-job information. It explains how you can make contact . . . channel, concentrate your employment advertising to just the men with the job qualifications you want.

Write for your free copy to
Classified Advertising Division
McGraw-Hill Publishing Co., Inc.
330 W. 42nd St., N. Y. 36, N. Y.

DEPT/Oil Men at Work

Sohio Creates New P. R. Setup

When A. A. Stambaugh was chairman of the board of Standard Oil Co. of Ohio, one of his functions was to meet people, make speeches, and generally to serve as "front man" for the company. Now that he has retired, Sohio has named his former assistant, Robert H. Collacott, to take over this role.

Sohio President Clyde T. Foster announced this week he has appointed Collacott to the newly created post of public relations director.

As Stambaugh's assistant, Collacott helped keep the company's best foot forward—sometimes even filling speaking engagements for which Stambaugh was unavailable. In his new spot, Collacott will be similarly back-stopped by Frank J. Kovac, newly appointed associate director of public relations.

Like Stambaugh, Collacott will represent the company in its relations with educational institutions, with thought leaders in other fields, and in certain industry affairs. Kovac will assist on all matters related to the improvement of company relations with the general public.

Collacott has been with the company since 1920. He has been manager of service stations in the firm's Cleveland and Toledo divisions, manager of the Akron sales division.

In World War II he served as chief of the price section, petroleum products division, Office of Price Administration. He was named assistant to Stambaugh in 1952.

Kovac joined Sohio in 1947 as a staff assistant in sales research; since 1953 he has been assistant to the vice-president in charge of sales.

•

JOHN W. POLKINGHORN retired this week as director of the land and lease department of Texas Gas Transmission Corp. He was in charge of obtaining pipeline rights-of-way and property for other facilities throughout the nine-state system. He was a former school teacher and Kansas oil and gas operator when he switched to geology and joined Kentucky Natural Gas Corp. in 1929. When Kentucky Natural and Memphis Natural Gas Co. merged in 1949, to form Texas Gas, he was appointed director of the new company's land and lease department.

GEORGE E. PIERCE is the new controller of Buckeye Pipe Line Co., New York City. He joined Buckeye after holding a similar office for a Brooklyn cocoa and chocolate manufacturer. Prior to that, he served as treasurer of a farm implements firm in Nebraska, assistant sales controller of Standard Brands, Inc., N. Y. C., and as a special agent for the Federal Bureau of Investigation.

OTIS COONEY has been promoted to assistant production manager of Continental Oil Co.'s southern region. He will move to Houston from San Antonio, where he has been division production superintendent since 1945. He joined Conoco in 1939 and held several positions in the company's production department in Louisiana.

C. E. COLE has been promoted to manager of Arkansas Fuel Oil Corp.'s exploration division at Shreveport, La. He succeeds **E. L. Caster,** who died recently. Cole has been the firm's chief geologist since June, 1953, and will continue to hold that job. **L. A. Braly** will supervise the firm's land department. He will move to Shreveport from Ft. Worth, Tex., where he was land man for the southwestern division of Cities Service Co.

ROBERT E. BORDEN, director of LP-Gas Information Service and secretary of the National Council for LP-Gas Promotion, will leave these posts Aug. 15. His resignation disclosed no future plans. He entered the liquefied petroleum industry in 1949, after service as publicity director for an automotive accessories manufacturer, the National Patent Council, and American Fair Trade Council, all located in Gary, Ind.

WILLIAM C. KERN wil start serving Sept. 26 as a member of the Federal Trade Commission. He succeeds **James M. Mead** in the seven-year post. Kern was on the FTC staff.

DONALD L. FERGUSON has been named chairman of the security committee of Standard Oil Co. (N. J.). He is assistant manager of the firm's East Coast manufacturing division. He succeeds **Edwin H. Barlow,** who retired Aug. 1 after 42 years of service with Jersey Standard. He was a consulting engineer with Esso Research & Engineering Co. Jersey Standard's security committee was organized in 1950 to insure continuity of operations and preservation of records in the event of disaster.

FIVE OIL MEN have been named to the natural resources committee of the U. S. Chamber of Commerce for 1955-56. They are: **Rex G. Baker,** vice-president and general counsel of Humble Oil & Refining Co.; **J. W. Hargrove,** vice-president and secretary of Texas Eastern Transmission Corp.; **George V. Myers,** vice-president of Stanolind Oil & Gas Co.; **R.**

W. Ragland, vice-president of Richfield Oil Corp.; and **Franklyn Waltman,** public relations director for Sun Oil Co.

ORME LEWIS, assistant secretary for public lands in the U. S. Dept. of Interior, will leave office Sept. 15 to return to private law practice. No successor has been named. Lewis joined the department Feb. 10, 1953.

S. A. BALLARD has advanced from head of the petroleum department of Shell Development Co. to the post of associate research director. He will remain at Emeryville, Calif. He will be responsible for the firm's market development, plastics and resins, and Polymer and chemical applications departments.

H. C. WALKER has been appointed assistant manager of Ohio Oil Co.'s personnel department, Findlay, Ohio. He was personnel supervisor at Casper Wyo. where he will be succeeded by **R. E. Engdahl,** assistant department head there. **R. M. Churchwell,** the firm's petroleum engineer at Casper, will also be transferred to Findlay, with the title of assistant chief petroleum engineer. He will be replaced in Casper by **L. C. Powell,** division petroleum engineer at Terre Haute, Ind. Powell, in turn, will be replaced at Terre Haute by **R. N. Ayars,** assistant division petroleum engineer at Houston. **C. W. Stephens,** former petroleum engineer in Ohio Oil's Los Angeles division, has been promoted to senior petroleum engineer, on specially-assigned duties and has been succeeded by **W. B. Emery II,** formerly petroleum engineer at Bakersfield, Calif.

EARL J. CRAMER, production superintendent for the western division of Standard Oil Co. of Texas, has retired after 46 years of service with Standard and affiliates. He announced no plans for future activities. He entered the oil business in 1905, at Cleveland, Ohio, as a pumper and well-puller for Millican Oil Co. He started an independent pulling operation after one year. He drifted, after the panic of 1907, into other jobs before joining Standard Oil Co. of California in 1909 as tooldresser on a cable tool rig. He was transferred to Texas in 1922 and has lived in Midland since 1948.

ROY M. MAYS has been promoted to exploration manager of Continental Oil Co.'s Rocky Mountain region. He will remain in Denver, Colo., where he served as the firm's regional land superintendent. The latter office will be headed by **Ben D. Donnell, Jr.,** who will advance from assistant land superintendent. **C. B. Smith, Jr.,** is new geophysicist for the region, replacing **C. K. Shepherd,** recently appointed exploration manager of Continental's subsidiary Egyptian-American Oil Co. Mays will be assisted in his new job by **Robert E. White,** formerly chief production clerk for Conoco's Rocky Mountain region.

VICTOR H. ZOLLER has been promoted to exploration director of White Eagle Oil Co., Tulsa, Okla. He managed the firm's Midland division. He will continue to supervise Midland operation from Tulsa headquarters.

M. R. SCHREIN has been elected vice-president in charge of manufacturing of Universal Oil Products Co., Des Plaines, Ill. He was vice-president and general manager of Universal Polychem Co., a UOP subsidiary which merged with the parent company Aug. 1. Polychem, manufacturing at McCook, Ill., and Shreveport, La., will continue as a separate operation of UOP, without change in policies or personnel. **Frank O. Byrne** and **Thomas B. Drake** have been elected assistant secretaries of UOP. **D. A. Cameron** comptroller, and **A. W. Lindahl,** assistant comptroller.

STANLEY G. BENDORF, who resigned recently from the petroleum consulting firm of DeGolyer & MacNaughton, Dallas, has opened his own office in the Fidelity Union Life building in that city. The office will prepare, analyze and evaluate reports of oil and gas properties. He has had service with Cities Service Gas Co. and Phillips Petroleum Co.

ALLEN EHLERS has been appointed chief geologist of the crude oil division of American Trading & Production Corp., Midland, Tex. He has been an independent consulting geologist since Jan. 1. Before that he was geologist in the West Texas-New Mexico district for Skelly Oil Co.

M. B. GORDY is new manager of Stanolind Oil & Gas Co.'s southern Louisiana district. He was transferred to Lake Charles from Lafayette, where he was area superintendent. **T. L. Cullom,** production foreman for the Lafayette area, will take over as superintendent.

JOHN H. TRESCOT, JR. will assist the oil department manager of Climax Molybdenum Co., N. Y., in the firm's expanding program of investments in water flood properties and semi-proven royalty purchases. He is a former member of the pipe line department of Shell Oil Co. Climax, as part of its diversification moves, may also underwrite wildcatting ventures.

ADVERTISERS IN THIS ISSUE

This index is published as a convenience to the readers. Every care is taken to make it accurate, but PETROLEUM WEEK *assumes no responsibility for errors or omissions.*

Aero Design & Engineering Co. ... 3rd Cover
American Chemical Paint Co. ... 27
Dowell Inc. ... 4th Cover
Du Pont de Nemours & Co., Inc., E. I. ... 7
Ethyl Corp. ... 1
Foster Wheeler Corp. ... 8
Hercules Powder Co. ... 4
Oakite Products, Inc. ... 3
Shell Chemical Corp. ... 2nd Cover
Youngstown Sheet & Tube Co., The ... 2

CLASSIFIED ADVERTISING
F. J. Eberle, Ass't Mgr.

EMPLOYMENT OPPORTUNITIES ... 38

PETROLEUM WEEK REPRESENTATIVES

Atlanta 3
Stokes T. Henry
801 Rhodes-Haverty Bldg.
Walnut 5778

Boston 16
Edward A. Callahan, Jr.
350 Park Square Bldg.
Hubbard 2-7160

Chicago 11
G. L. Hackley, Jr.
W. F. Holbrook
520 North Michigan Avenue
Mohawk 4-5800

Cleveland 15
J. E. MacArthur
1510 Hanna Bldg.
Superior 1-7000

Houston 25
David G. Sawyer
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17
Knox Bourne
1111 Wilshire Blvd.
Madison 6-4323

New York 36
Edward A. Callahan, Jr.
Donald R. Thompson
330 West 42 Street
Longacre 4-3000

Philadelphia 3
W. A. Potter
Architects Building
Rittenhouse 6-0670

San Francisco 4
T. Evans Wyckoff
68 Post Street
Douglas 2-4600

Tulsa 19
J. A. Hartley
Room 309, 611 South Boston
Gibson 7-7767

Now's the Time to Start Talking

POLITICS HAS PLAYED A BIG ROLE so far in the fight against legislation to free natural gas from federal control. But you haven't seen anything yet! Just wait until next year —it'll be twice as bad.

This means the industry still faces an uphill battle, even though the House last week finally approved the Harris bill. That's why it is not a bit too early to start sizing up the situation and mapping strategy to offset the stepped-up tempo of politics which lies ahead.

IT'S PROBABLY TRUE that had the bill reached the Senate earlier in the year it would have been passed. But the House didn't act until the eve of adjournment. So opponents in the Senate were able to stall off a showdown by threatening to use the effective weapon known as filibustering. They simply would have talked the bill to death.

These opponents can't filibuster all the way through the next session, of course. But they'll try to talk the legislation to death at another point—the political rostrum.

There's no doubt that many stump speeches will have as their keynote the need for "protecting" the natural gas consumer from the ravages of "a powerful, greedy industry."

On the other hand, unfortunately, candidates who realize that the federal government has no business controlling natural gas producers are very apt to keep those thoughts to themselves during campaign time for fear of scaring away some voters.

It shapes up to this: Most of the political talking is going to be done by one side, and that will be the side that opposes the legislation.

WHAT CAN THE INDUSTRY DO about it? For one thing, it can speak up—speak up boldly and aggressively, without embarrassment or apology. Perhaps the biggest handicap the legislation faced this year was that the talking started too late. The bill wasn't even introduced until almost two months after Congress met. And the industry's effort to present its case to Congress and the public was definitely on the uncertain side, at least at the outset. It improved as time went on, but it improved too late to swing the tide before adjournment.

There should be no let-up on the industry's part between now and the time Congress meets again. It should use that period to make certain that every senator understands exactly what the legislation is all about. And it should do the same for the public; it must break down the conception held by so many of the general public that this is some sort of move by the rich oil and gas industry to hike the consumer's gas bill.

THE INDUSTRY SHOULD STRESS two main points:

(1) The politics should be got out of the issue so it can be decided on its merits. No other producers of raw materials are controlled by the government, and there's no just reason why the gas producers should be forced to play by different rules.

(2) The consumer is NOT going to be "gouged" by the natural gas producers. In the first place, his price is only a small fraction of the eventual consumer price. And the producer's price is a result of competitive supply and demand, just as prices of other raw products are.

The producers, of course, realize and understand this. But the mistake many have made is to take it for granted that everyone else understands, it, too. Fortunately, there's time left to make sure that they do.

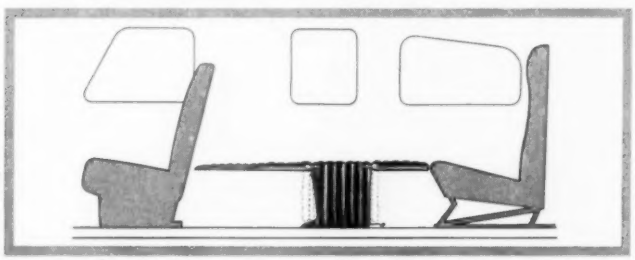
Twin Bed comfort

in the **NEW, BIGGER**

AERO Commander 560-A

LONGER • ROOMIER • MORE COMFORTABLE

Twin-bed comfort is but one of the flexibility features made possible by the longer, roomier cabin of the new 5-7 place Aero Commander 560-A. The optional hassock seat unfolds in seconds to provide a seat back, a chaise longue or a comfortable bed for the flying executive.



For complete information contact your Aero Commander distributor or write for Catalog 131-A

AERO DESIGN AND ENGINEERING COMPANY • TULAKES AIRPORT • P. O. BOX 118 • BETHANY, OKLAHOMA

XM ACID

Acid additive developed by Dowell helped to increase production from 6 to 480 BOPD—after regular acidizing failed

Dowell addition agents and acidizing techniques give a big boost to your chances of more successful well completions and more profitable production.

For example, here's the case of a well completed in a dolomitic formation. Two successive regular acidizing treatments had raised the well's output from 6 BOPD natural to 30 BOPD. Then the well was acidized by Dowell using XM Acid. As a result, production jumped to 480 BOPD!

These results indicate that in the two regular acidizing treatments, clay and silicate materials were swollen by spent hydrochloric acid and had partially plugged the flow channels. Often in such cases, regular acidizing actually decreases production. However, XM Acid contains a Dowell-developed additive which is designed to control silicate swelling and eliminate such plugging.

For full information about modern acidizing services tailored to your well, call the nearest Dowell office. Or write Dowell Incorporated, Tulsa 1, Oklahoma, Dept. H-75.

services for the oil industry

DOWELL

A SERVICE SUBSIDIARY OF THE DOW CHEMICAL COMPANY